



# Economic and Social Council

Distr.: General  
22 September 2016

English and Russian only

---

## Economic Commission for Europe

Conference of European Statisticians

Group of Experts on Population and Housing Censuses

**Eighteenth Meeting**

Geneva, 28 - 30 September 2016

Item 6 of the provisional agenda

**Alternative methods for counting of population, in particular hard-to-count population groups**

### **Innovations of the 2016 Microcensus in Hungary**

**Note by the Hungarian Central Statistical Office<sup>1</sup>**

*Summary*

The paper presents the history and meaning of microcensuses in Hungary. As microcensus is also a tool for testing new census methods, the 2016 microcensus is presented in detail. The paper covers the following issues: 1. The history of microcensuses in Hungary, the definition of microcensus, the differences and challenges of executing a microcensus; 2. 2016 microcensus in detail: sample design, connecting supplementary questionnaires, new data collection method, new data processing method; 3. Microcensus as a tool for testing new census methodology, challenges to face.

---

<sup>1</sup> Prepared by Virag Erdei.

## I. Introduction

1. The Hungarian Central Statistical Office will execute a 10 per cent microcensus in October 2016. The paper gives an overview about the task and shows its novelties and challenges.

### A. The definition of microcensus

2. Microcensus is a “small census” that is carried out between two censuses – generally half-time – on a sample in order to update census information. The difference between a census and a microcensus is that a microcensus is always based on a sample. Similarly to a census, responding to the survey is compulsory and ordered by law. Microcensus is a big census type data collection that uses the same methodology as the census. A speciality of microcensuses in Hungary is that there are always connecting social surveys.

3. Microcensus corresponds to the essential features of a population and housing census only partly. It is done simultaneously, information obtained about individuals and housing conditions refers to a well-defined and unique reference period. Microcensus is taken at regular intervals so comparable information is made available in a fixed sentence. Microcensus provides data about small but not the smallest geographic areas of the country. It does not count persons and houses individually so it does not ensure individual enumeration. Microcensus is not universal in the territory of the country either. Data derived from microcensus are produced to the full population and housing number but with statistical methodological calculation.

Table 1

**The essential features of a population and housing census compared to those of a microcensus**

	Census	Microcensus
Individual enumeration	yes	no
Availability of small-area data	yes	partly
Universality within a defined territory	yes	no
Simultaneity	yes	yes
Defined periodicity	yes	yes

4. Even though it does not comply with the essential features of the census, there are many similarities. It applies the same methodology in the definition as the census itself. Persons and houses to be enumerated are the same with only a few exceptions. Information to be collected is also the same in order to be comparable with data collected from previous censuses. As it is bigger than a usual social survey, data processing mechanism is very similar to census data processing. Preparatory works like legal preparation, recruiting and training enumerators, designing questionnaires and necessary manuals are approximately the same.

5. The topics and the questionnaire are the same or very similar to those of the census. The microcensus sample however allows us to ask for more detailed information to some questions compared to the census. Besides the basic population and housing topics there are always supplementary surveys connected. These are about important current social issues.

6. There is a big difference between census and microcensus organization. Local administration is not involved in the microcensus exercise as this is not such a huge event that would require it. One of the reasons is that census in Hungary

requires 40-50 thousand people to participate in it, while microcensus requires only a small part of it. In this case the Hungarian Central Statistical Office is responsible for all the phases of the execution. Another reason for not involving public administration in the task is that not all the settlements are contained in the sample. Data are representative to bigger territorial units like regions or counties.

7. Generally before a census, test or pilot censuses are executed in order to test new methodology, questionnaires, etc. However these are only executed in some enumeration areas or districts of some settlements. Therefore microcensus is always taken as a big census test but it also provides data for the users. So microcensus has a test function as well.

## **B. Differences and challenges of executing a microcensus and a census**

8. Executing a microcensus is not that obvious as executing a census. It is not obligatory in the EU, and it was only recommended in earlier CES recommendations. It has a tradition in Hungarian statistical life. For the realization of this task the statistical office has to show and prove its value to decision makers in order to get money for it. This is the starting crucial point.

9. Decision has to be made about the sample size and the connecting surveys. The size and the type of the sample have many effects on the whole exercise.

10. The size of the sample has many effects on the work, the preparatory work, the recruiting and training of the enumerators, the data collection and data producing phase. The sample size and form, the methodology and the budget all have their effects on the work.

11. People responsible for the microcensus differ much from the census. Public administration is not involved in executing the microcensus which has its benefits but at the same time involves difficulties too.

12. Making people answer the questions of the microcensus is a big challenge. There is a communication campaign to inform people but not as big as in the case of the census. As answering questions is a burden for the respondents, they want to know why they have been chosen to answer and not others. One person represents more people but this has to be made clear for them.

13. Enumerators have to work harder and convince people about the aim and the necessity of the survey.

14. Grossing up is a challenge mainly for the methodologists in the office.

15. If the microcensus uses some new methodology in some part of the exercise, it is also a challenge as this is a real test.

## **C. The history of microcensuses in Hungary**

16. Microcensuses have a long tradition in Hungarian statistics. Previously HSCO carried out a microcensus in 1963, 1968, 1973, 1984 and 1996 and the last time in 2005. The statistical office carries out the Microcensus 2016 to collect new data but at the same time uses the opportunity to test new census methodologies and to collect data about other important social fields in supplementary surveys.

17. The history of the Hungarian microcensuses is in strong connection with the history of censuses, its principles, methodology and practices. From the beginning of the series of modern censuses, statistical science, mathematical methods and IT technology have gone through a significant development. Especially methodology and the way of choosing samples have improved significantly.

18. The need for a detailed and actual data from the participants of the political, social and economic parties resulted broader and broader themes of the censuses. The need for more information was solved by applying short and long questionnaires in a census, when a longer questionnaire on sample (20-25 percent) was asked. However this did not solve the problem of shortening the 10-year census period. 10 years seemed to be too long to follow the social and economic changes of the society. These were the reasons why many countries started to execute microcensuses in the meantime of censuses. Even in the earlier census recommendations microcensus was mentioned as a useful tool between two censuses.

19. Several countries in the period between the 1950s and the 1980s applied this technique. Hungary also chose this solution. We executed 6 microcensuses periodically from the 1960s. 2016 microcensus will be the 7th one in this series.

20. In Hungary microcensuses were executed on a 2 per cent sample before, the 2016 one will cover a 10 per cent sample. The topics of the supplementary questionnaires always depend on relevant social issues. In 1963 and 1968 plans about building a flat or moving to a new flat were interesting topics, while in 1973 changing occupation emerged as a topic. In 1984 women between 15 and 55 and retired-age persons were in the spotlight. In 1996 income, properties and travel habits were interesting, in 2005 using IT and communication devices and changing life circumstances were also topics of the supplementary questionnaires. It is interesting that in almost all microcensuses income was an important issue to ask about.

Table 2  
**Hungarian microcensuses by main features**

Year	1963	1968	1973	1984	1996	2005	2016
Reference date	1. January	1. January	1. January	1. October	1. April	1. April	1. October
Sample size	2%	2%	2%	2%	2%	2%	10%
Data collection period	2–10 January	3-15 January	2–15 January	1–31 October	1–21 April	1–21 April	1 October–8 November
Number of supplementary surveys	5	3	2	2	3	3	5

21. Microcensuses from the beginning had some test function as well. It allowed the testing of new methods, techniques, questions, new wording of the questions, etc. The 1968 one was a test census, the 1973 one applied a new sampling method, the 1984 one was the first attempt to use administrative data, the 1996 one was the first big data collection after the change to the democratic system and the 2005 one was executed in improved IT technology circumstances. In this series the 2016 microcensus is rich in topics and applies many technical innovations.

## II. Microcensus 2016

### A. Preparatory works

22. Preparation for the microcensus started in July 2014. The methodology and the technical executions have been designed, the content of the questionnaire have been defined, the supplementary surveys have been chosen.

23. As a microcensus can be executed by law, the most important thing was to convince decision makers about the necessity of this big data collection and get the budget for its execution. The legal preparation was done by the lawyers of the statistical office, the act was prepared, and the management and the experts of the statistical office participated in the negotiations with the decision makers. Finally the law about the microcensus was adopted in March 2015.

24. As the Farm Structure Survey was carried out in May and June 2016 the HCSO decided that the two big data collection would be executed in one big project. It mainly had an effect on the tasks to be outsourced, for example one public procurement was prepared for both tasks in order to use similar IT systems for both surveys. (See Annex I.)

25. Microcensus is a big task in the life of the statistical office and besides the Census Department many other departments are involved in it. As there are supplementary questionnaires connected to the basic microcensus questionnaires, very strong cooperation is needed between the departments for the successful execution. Even more departments and colleagues are involved in this task than in the census itself, which enquires more communication, more meetings and more teamwork. Contrary to the census which is executed by local governments, microcensus is executed only by HCSO.

26. In 2015 testing the questionnaires was the biggest challenge. In the focus groups different people were asked to fill out the questionnaires in order to design it the best way. Parallel with this task, preparatory works of data producing, coding, IT service, monitoring system, etc. started. Preparations for the public procurements was one of the most challenging tasks in 2015.

## **B. Legal background**

27. The execution of the microcensus is declared by law. The detailed tasks are declared by a government decree. Data supply to the microcensus questions is compulsory except for the sensitive questions (mother tongue, nationality, disability). Answering to the sensitive questions is voluntary just like answering to the supplementary questionnaires.

28. Legislation:

- Act XLVI of 1993 about statistics
- Act X of 2015 on 2016 data collection of the personal, family and housing conditions of the population based on sample
- Government Decree 65/2015. (III. 25.) on detailed tasks of the 2016 data collection of the personal, family and housing conditions of the population based on sample
- Government Decision 1069/2015. (II. 25.) on tasks of the preparation of 2016 data collection of the personal, family and housing conditions of the population based on sample

29. The Act about microcensus declares the reference date, the scope of the enumeration, the execution method, the enumeration period and the topics to be collected. The Governmental Decree and the Governmental Decision are about the detailed rules of the execution.

## **C. Sample design**

30. Microcensuses used to apply a 2 per cent sample. The 2016 one however will use an extraordinary and uniquely large 10 per cent sample. Its main reason is that there is a significant data need not only for census type data but also for small-area

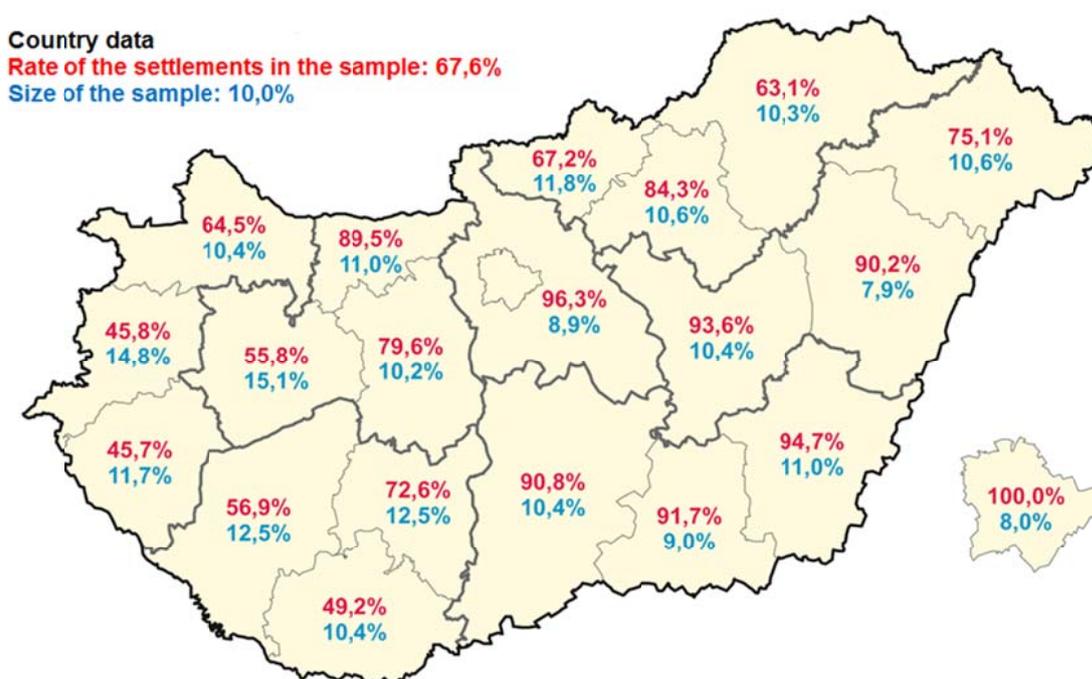
data. Therefore the sample was chosen to be representative to a smaller level than before. It will be representative to district level (close to LAU1) the number of which is 197.

31. The sampling frame is based on the updated 2011 Census Address Register of HCSO.

32. The sample covers 440 thousand dwellings and 500 institutions in 2148 settlements (out of the total 3176 settlements in Hungary).

33. The sample is a stratified two-stage probability sample of dwellings in each district. At the first stage settlements are stratified by size and selected with probability proportional to size. Most of them are certainty units (self-representing settlements). Within each selected settlement dwellings are selected with systematic random selection method from an ordered list of dwelling (ordered by 2011 census enumeration district code and serial number of dwellings).

34. Allocation is far from being proportional. The distribution of target variables, the structure of settlements and population size vary from district to district. This variability resulted in an unproportional allocation.



## D. Questionnaire

35. The content of the questionnaire is based on the 2011 census topics in order to produce comparable data. However, there are a few changes in the questionnaire. There have been changes in the society and the life of people in the last 5 years, which resulted necessary changes, and new data needs turned up from the users too. The statistical office also had some professional reasons to change a few things, and the electronic form of the questionnaire also resulted changes in the questions.

36. The methods of the changes:

- Small changes like updating a question, new wording, reformulation, new categories: In the Demography block some questions have been a bit modified. Citizenship is asked the same way but at a more detailed level. We also ask the citizenship of the owner of the dwelling. A few questions in the

Economic Activity block is modified for detailed information (e.g. some migration related expansion).

- Modifying a question: There are two modified questions in the Dwelling questionnaire block. A new answer has been added to the ownership of the housing unit, about the citizenship of the owner.
- New question added: One question has been added to the Economic Activity block to measure the duration of the work contract. One new question is included in the Disability block as a filter question for the limitations of the supplementary survey. A new question has been added: the question about the renovation of the housing or any maintenance work carried out in the last ten years.
- More answer options: In some cases we take advantage of the benefits of the electronic questionnaire. As we are not limited to a certain length of a paper question box, we can let the respondents give more answers in certain topics if they want to. Microcensus for example gives the respondents the opportunity to give besides their highest qualification 5 more qualifications they obtained inside or outside the educational system.

## **E. New data collection method**

37. The microcensus in 2016 will be carried out from 1 October till 31 October (with a supplementary period until 8 November) with the reference date 0 o'clock 1 October 2016.

38. The data collection will be a two-step data collection. The first phase will last from 1 October till 9 October when respondents can answer only on the internet. In the second phase enumerators will visit the households from which no online questionnaires have been received. This method is new compared to the 2011 census when in the first 9 days the respondents could answer through three different channels (on the internet with unique login codes, by filling out the paper questionnaire themselves or by answering the enumerators). This time we avoid using more channels at the same time. We expect that with a strong communication campaign and a better internet application we can urge much more people to fill out the online questionnaire. Like in the previous census, the internet data collection period will include two weekends. It is important as we experienced that internet answering rate is the highest at the weekends and in the beginning and at the end of the data collection period.

39. The 2016 microcensus data collection method will be new in terms of using only electronic devices without any paper questionnaires. The enumerators will use laptops and tablets for their work. HCSO will provide devices to one-third of the enumerators and all the others will use their own devices. The filling application will be uploaded to the devices to be able to use for the data collection work.

40. HCSO will deliver an information letter with the unique internet login code by post to the addresses chosen between 26 and 30 September.

## **F. Organization**

41. The organization is in pyramidal system where all the participants have their own exact tasks and the participants have discussed leading, controlling, cooperating or checking relationship with each other. The Census Department is on the top of the pyramid, and the enumerators are on the lower part of the pyramid. The local public administrations are not part of the execution unlike in the census where they have very important role.

42. Microcensus 2016 will be executed by around 3800 enumerators with 400 territorial organizers. Enumerators are the key factors in the data collection phase so they are chosen according to several different aspects like IT knowledge, good communication skills, previous experience in similar work fields, etc. They are trained in more steps in order to acquire the necessary professional, IT and communicational knowledge as well. They have to be precise and reliable as the field work depends on their work.

43. The statistical office endorses the professional factors and principles uniformly in the country through the territorial organizers' network. The territorial organizers will control and check the work of the enumerators. One territorial organizer leads 10 enumerators on average. They put the basic information in the monitoring system, refill the lost enumerators, deliver the tablets, prepare the contracts and the certificate of the execution of the work. Besides the controlling of the enumerators, their other main task is to code the text fields of the questionnaires.

44. County instructors organize, control and check all the tasks emerging in the county. They recruit the enumerators, organize the preparatory works like training, getting in contact with the secured institutions etc. They control and check the work of the territorial organizers and the continuous progress of the microcensus. They report between the field work and the Census department.

45. Central contact persons are members of the Census Department who are responsible for a county during the exercise. They have to help in the information flow and make the necessary decisions. They handle the territorial specialities in the preparatory phase and during the enumeration phase as well.

## **G. New data producing method**

46. Data producing mechanism will be totally new compared to the previous ones applied. This will be the second biggest improvement besides the electronic data collection.

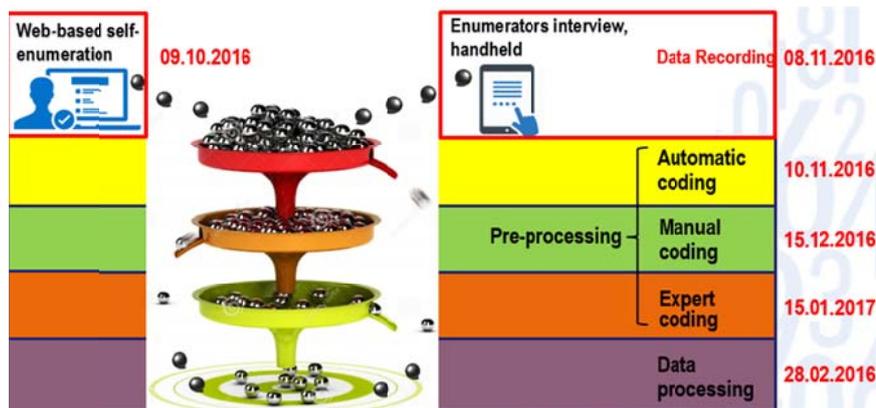
47. In the 2011 census all data were processed after the enumeration had finished. When one phase of the data producing was finished completely, the next one started right after. This was carried out like this because of the paper questionnaire. There will be significant changes in the procedure of data processing in Microcensus 2016 compared to Census 2011. In 2016 all the data will be processed "step by step" right after a questionnaire is filled out either by the respondent or the enumerator, and after the data have arrived in the database. It means that several data processing phases will work simultaneously. Questionnaires will have their own route separately, and there won't be a store of questionnaires to be processed together.

48. Questionnaires will go through three data correction phases:

1. Automatic coding
2. Manual coding
3. Expert coding

49. A filled questionnaire after it is accepted by the system immediately goes to the data processing system. Each questionnaire will go through the data correction phases uniquely. The system does not require finishing the enumeration but will work from the beginning of the data collection phase. This procedure relates to all three data correction phases. It means that one questionnaire can be in the final database on the first day of the enumeration while another will be in the final database only some months later.

50. The data received from every single address will proceed through this mechanism elaborated from the pre-processing to the data processing procedure.



51. The last step will be the final data processing phase which will be done by the IT Department of the statistical office. This mechanism will reduce significantly the time of all the procedures. The expected deadline for the final dataset is March 2017, just 5 month after the data collection.

## H. Supplementary surveys

52. Five supplementary surveys are connected to the microcensus. These are important social surveys partly because they will provide new information about the society (social stratification, occupational prestige), partly because they will provide more detailed data about certain topics (well-being, limitations due to health problems, international migration). Some questions are asked after many decades and will provide important missing information about the Hungarian society like occupational prestige or social stratification based on detailed information.

53. Answering to these questionnaires is voluntary. One supplementary survey will be conducted to each private household in the sample. The share of the supplementary surveys is:

1. Social stratification (20%)
2. Occupational prestige (10%)
3. Well-being (10%)
4. Limitations due to health problems
5. International Migration (4 and 5 together: 60%)

54. With this method the HCSO wants to use the possibility of getting in contact with many people to get information on six different social issues at the same time. On one hand it increases the total cost of the microcensus but on the other hand it reduces the cost of 5 separate sample surveys applied in different times. The common application also increases the amount instead of developing 5 separate data collection systems for the 5 different topics.

55. It is important to emphasize that the supplementary questionnaires are prepared in strong cooperation with the leading researchers of the Hungarian social science. These researchers will also help in analyzing the collected data.

## I. Results and data dissemination

56. An informative publication about the content of the questionnaires and the methodology of the main and the supplementary questionnaires is to be released a

month before the microcensus in September 2016 to inform the public and the users about the details of the data collection, furthermore to promote the issue of Microcensus 2016.

57. The dissemination of the results is planned to start in May 2017, six months after the end of the data collection. This short time until dissemination is made possible by the electronic method of data collection and the efficient way of data processing. Producing final data in such a short time will be unique in the history of censuses and microcensuses of the HCSO.

58. Dissemination will start with the basic information about the population and the housing conditions. The dissemination of detailed data of the microcensus will follow with the results of the supplementary surveys.

59. The main channel of dissemination is online with a very limited amount of printed publications (less than in Census 2011). Final datasets will be available in the Safe Centre of HCSO for researchers.

60. Data producing and analyses will be done by the departments responsible for each survey. Basic microcensus data will be processed by the Census Department, Social stratification, Occupational prestige and Well-being by the Living conditions, Labour Market and Education Statistics Department, while Limitations due to health problems and International migration data by the Population and Social Protection Statistics Department. Researchers participating in the development of these questionnaires will also participate in the detailed analyses of the gained information.

### III. Challenges

61. In the series of microcensuses we can say that the 2016 one is 'rich in topics and applies many technical innovations'. In consequence HCSO and the Census Department have to face many challenges.

62. The new data collection method: We are curious about the success and the acceptance of the two-step data collection method. Microcensus will be its test and we will be able to compare this method with that of the 2011 census when we used more data collection channels at the same time. We expect that with this new method supported by a strong communication campaign, a bigger internet answering rate can be achieved than in 2011. We think that with this method we will help respondents and enumerators and we can avoid confusing them as it happened in 2011.

63. Expenses: As we will not use paper documents, only tablets, we can reduce costs. However the budget is planned calculating that we will achieve a certain level of internet answering rate (20% is expected) so we have to work hard on it. We expect that the new data collection method, the modernization of data producing, and using technical devices instead of paper documents, we will have financial benefits.

64. The improved IT background: The IT system of microcensus 2016 is established through five important platforms. These are the following: Internet platform, Tablet/Laptop platform, Monitoring system, Coding system and Supervisor platform. Every single platform has a main role in the proper conduction of the microcensus.

65. Many IT tasks are outsourced as in 2011. We decided to use our previous experiences in IT applications and cooperate with an IT company based on these. We learned a lot from the previous census and we hope that the new IT applications will be better and more effective, and we can benefit from our previous experiences.

66. Recruiting and training enumerators: This kind of data collection needs enumerators with different knowledge and skills than in the case of the normal paper

based data collection. We train enumerators so that they can use the application properly and be prepared for the new challenges, but the training itself is a new task for us as well. We also put emphasize on choosing people who have good interviewing skills besides the professional use of tablets or laptops, just like on previous censuses.

67. Easier answering: Using an IT application has many effects on the questionnaires. The electronic data collection has many advantages compared to paper questionnaires. We are curious about its effect on the data suppliers also. Will they use the opportunity to give more and more detailed answers? Will they manage to fill out the questionnaire easier and faster than the paper form? Is it really more convenient for them? Will the application work smoothly during the whole exercise? etc.

68. Online questionnaire accessible to disabled persons: This will be the first attempt to make online questionnaires accessible to disabled persons. Based on the requirements of organizations of blind and deaf persons and with the help received from the ONS UK we offer screen reader option and sign language adaptation for those in need.

69. Data quality: We expect that the electronic data collection method and the many in-built rules will have good effect on data quality. In 2011 self-filling on paper questionnaires had the worst quality. We hope that we will manage to find a good balance between the necessary in-built rules and the smooth work of the internet application.

70. Data protection: It is always an important task to ensure data protection for the public during the whole exercise. The enumerators will sign data protection requirements in their contract and so will do the other participants. The protection of personal data has to be proved to the data suppliers. Using laptops and tablets make data collection much safer than in the case of paper questionnaires. After an enumeration is finished by the enumerator, the questionnaire is closed and cannot be opened again. At the end of the day the whole amount of daily questionnaires will go to the central database. If a device is lost, data are protected by a key. The protection of personal data in data dissemination will be as safe as in the 2011 census. This information has to be well and clearly communicated to the public to ensure trust in the statistical office.

71. Communication: Even though microcensus is a compulsory survey, it is very important to inform people about its necessity, its importance and its procedure. As people are randomly chosen in the sample, we have to communicate the sampling method well and clearly. It is very important to communicate that we do not use names, only addresses, and we want to enumerate all population groups in order to produce good quality data.

72. In the communication campaign classical communication tools will be used, i.e. tv and radio ads, print and online advertisements, a microcensus website, an information service hot line, press conferences and press releases, etc. We will employ a spokesman for the census, and we continue to work with civil organizations too in order to get in contact with social groups hard to reach.

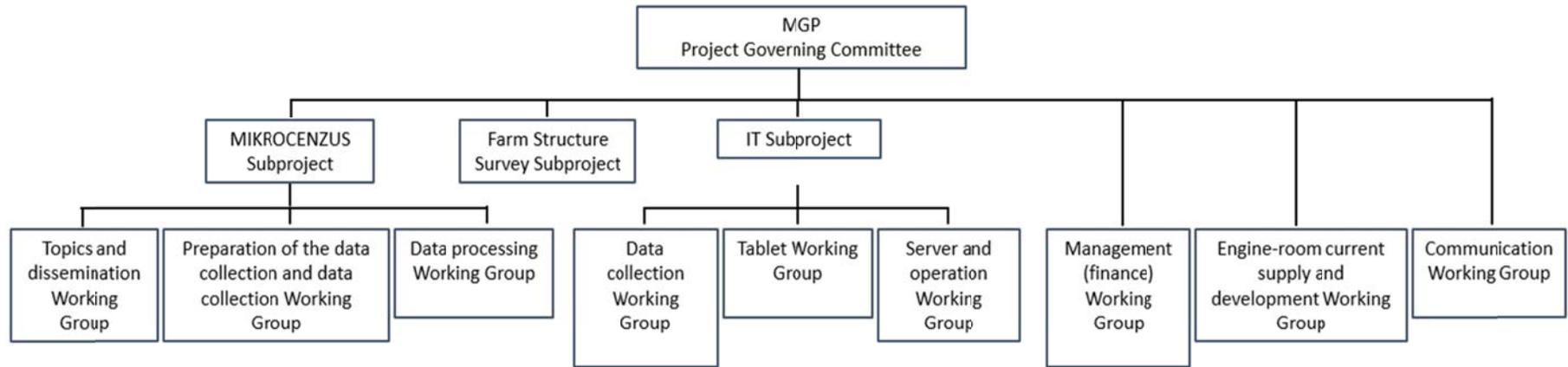
73. A special emphasize will be put on the internet answering phase as we want to urge people to fill out the questionnaire by themselves through the internet. The campaign will apply special tools for this important issue.

74. Data processing: A totally new method has been developed for the microcensus data processing. We plan to do it in 6 months' time which is an incredibly short period for such a huge task. Data processing will start parallel with data collection. Hopefully the process will work and we can keep the planned timetable for producing the necessary data.

75. Training for the Census Department: Executing a microcensus is not as big a task as the census but almost. The phases, its mechanism, and the necessary works are more or less the same. As there are many young colleagues at the department, some of whom did not participate in the 2011 census, the microcensus will be a very good practice for them. Of course it is a big task for the other colleagues too at the department as everybody can learn his/her task in small, and the whole group can learn how to work in strong cooperation with each other. We can say that the microcensus is a good and big test for the census team as well.

76. To sum it up, the whole 2016 microcensus exercise is a big task and challenge for the Hungarian statistical office. We expect a good and successful execution, good quality and valuable data, much new and up to date information, effective cooperation, and much experience for our next census.

Annex I.  
**MGP Project organization scheme**



GE.