RADONORM SURVEY IN BULGARIA

Technical report

Brief introduction about the fieldwork company and the team (contact persons)

- Market LINKS is founded in 2001 as a full service research and consultancy agency.
- Our core research team has over than 20 years of experience in social and market research projects. The Company has worked on many diverse in terms of topics, scale and methodology research projects.
- Company is a full service provider of research based on custom-designed as well as on standard methodologies and research procedures.
- Market LINKS strictly complies with professional codes and international standards of research conduct based on ESOMAR code. In our research we maintain high and stable standard in data collection and back-check control.
- Market LINKS is ranked number one of the local Bulgarian agencies and among top four research companies in Bulgarian market overall.
- Market LINKS is a member of ESOMAR, the Bulgarian Association of Marketing and Opinion Researchers, IRIS Network – the largest world-wide group of independent research institutes and BAMOR – Bulgarian Association of Marketing and Opinion Research Agencies.
- Quality accreditations achieved according to ISO 9001:2009.
- Registered as an operator for personal data according to GDPR

Technical & technological assets

- Office in central location in Sofia with 20 working places
- In-house data coding, entry and processing
- Own web-based platform for data collection and 140 tablets for TAPI
- Own software for media planning and monitoring
- System for electronic tests ETS (Electronic Test Studio)
- CATI call center with 20 working stations
- Best conditions for conducting qualitative research: one-way mirror CL FG facility; professional simultaneous translation; audio & video recording equipment;
- Online panel of nearly 5000 personally recruited respondents

Human resources

The Company employees are experienced quantitative and qualitative researchers, analysts and experts, all with university and postgraduate education background, as professional

statisticians, economists, sociologists, economic sociologists, anthropologists, marketing professionals.

- Full Time Staff - 15 employees
- Part Time Staff - **10** employees
- Interviewers - **250** associates
- Regional Supervisors - **42** associates
- **250 interviewers** are very experienced in carrying out large scale surveys, with longer interviews and complicated questionnaires
- **60 interviewers** are specialised in in-depth and expert business interviewing
- Fieldwork network covers **92 towns** across the country

The project manager of the survey is one of the company owners, Dr. Tsvetelina Stoyanova, an expert sociologist with over than 25 years of experience in designing as well as in managing research projects and elaborating research methodologies

Type of the survey

We conducted a nationally representative on-field with face-to-face TAPI interviews, because this is the only reliable for the moment approach to achieve

We used that approach in the surveys which required strictly representative sampling such as Survey on disability and social integration" EUROPEAN COMMISSION EUROSTAT DIRECTORATE F: Health and food safety, Crime "Social and information society statistics", (nearly with 7000 respondents) as well as, for the WHO monthly omnibuses conducted during the pandemics of Covid 19, all political opinion polls and our monthly Omnibus. All these surveys prove to give very realistic and predicting results

- **Detailed description of the panel – doesn't refer to our survey**
  - how was the panel built up? = types(s) or sample sources, who is in the panel, how selected?
  - how often is panelist profile information/IP updated and verified (to avoid fraudulence)?
  - how often were panelists contacted and participated in surveys in the past year?
  - how were panelists compensated/incentivized ?
  - in case another panel was consulted to meet quota: characteristics of panel, timing, etc.?

Detailed description of the sample

- What steps do you take to achieve a representative sample of the target population?
- How was the random selection from the panel performed?

Sample size

The sample size of our survey is 1 000 respondents. The planned sample is with about 1% to 2% more – 1 010 or 1020 completed interviews – so as to have spare q-res to substitute the incomplete ones.

Refusals and non-effective contacts and interviews with less than 50% non-response rate to the questions are not included in the final sample of 1000 respondents.

Sample Design

We implemented a probability sample design for face-to-face interviews in respondents' homes to achieve a nationally representative sample of at least 1,000 adults age 18 and older.

We based our nationally representative survey samples on the information regarding the total universe for Bulgaria obtained through the "Population and Housing Census", which was conducted in **2021** in Bulgaria. The Population Census is the only source of accurate data on Bulgarian population as it provides exhaustive coverage of the population and thorough description by sex, age, education, literacy, occupation, religion, ethnic group - on country level, as well as on regional and residence place level.

Sampling approach

Through the years applying several different sampling approaches, we came to the conclusion that the most reliable approach for nationally representative sampling in Bulgaria is using ***multi-level (multi-stage) clustered sample, stratified by regions and residence places type*** with ***random route*** based sampling of end units (households). Within every strata are selected Primary Selections Units (PSU) – the enumeration areas (election districts). Within them we apply ***random walk approach*** so as to select the households, in which we identify the respondents by the ***method of last birthday***.

The sampling procedure goes through the following stages:

Stage 1: stratification by regions and residence place types

We define the first level strata using the following data for this procedure (based on National Census in 2021 – we use the shares by region and by type of residence place).

Gender should be achieved by applying correctly the random probability sampling. Additionally this structure is used when data is weighted.

Stage 2: Selecting of PSUs in which to conduct the field-work

The selection of the PSUs inside every strata is done randomly from the exhaustive list of all PSU, which reflect the distribution of the population in urban and rural places and regions.

Stage 3: Selecting buildings and households within the residence places

The urban residence places are divided into living areas-districts. The villages are treated as one district. At Municipality level there is available pertinent information on population in the districts and we have used that for the sampling of our other surveys with success.

The households are selected by **random walk approach**:

- Our interviewers have start-up (first) address.
- The skip interval will be pre-defined - every 5th house or block of flats in the towns, every 3rd house in villages.
- In case of block of flats only one entrance is chosen (every time should be a different one, if several) and every 5th apartment is selected starting form the first or last floor, alternatively.
- Interviewer does not change the walk-side of the street in his walk.
- At crossroads, the interviewer follows the instructions:
    a. On the first crossroad, turn left from and continue on the left side walk.
    b. At the next available crossroad, cross, turn right and continue on the *right side-walk*.
- At square or roundabout the interviewer continues on the same walk side.
- In villages where houses are mainly along the road will go to one end of the village and walk to the other end. Arriving at the other end of the village will cross the street and turn around, following the same procedure.
- In star shaped villages will start at the central crossroads, selecting a direction and a pavement. At the end of the road, will cross the street and walk in the opposite direction. At the starting point, will take the next street and follows the same procedure.

Stage 4: Respondents' selection within the household

Based on our experience we propose the Last Birthday method because it is easy to identify the target respondent and later to be checked.

If the person at the household is not available at home the interviewers will have to leave the household and move to the next one selected according to the same methodology.

All contacts – effective and non-effective were registered.

Sampling of the respondents the way as described above meets all the requirements of the national representativeness of the sample and of the data. It has been proven in many surveys to be more effective and representative, compared to all other random sampling methods used in the country.

In order to achieve the correct sampling the interviewers follow strictly several **sampling rules**:

- Only one person is interviewed per household;
- If the target respondent is not available at home nobody is interviewed at that household;
- The time of conducting interviews will be preferably in the period from 18.00 to 21.00 on working days and from 11.00 to 13.00 and from 17.00 to 21.00 – on weekends – so as to give equal chance for all residents of the households to be present at home;
- The interview has to be conducted in private without interference of other household members or other people;
- If the target respondent has disability related to speaking/hearing she/he could be assisted by the person responsible for him/her;

- **Characteristics of population (**Attached in excel file)- used for data weighting matrix

Overall fieldwork design

- **Method:** TAPI with our own platform for data collection
- **Timing -when started, finished**: soft launched before Xmas holidays – on 23rd of December but success was very minor and we launched it full power in the first working day of 2023 – 3rd of January till 22nd - the last day of the fieldwork.
  scripting procedure (e.g. programme used)

  - data preparation info – do not understand what is meant by this item

- **Information on pilot/soft-start**
  - **Piloting:** First we had 5 interviews and we saw that we had to add two more variables
  - T**iming** – the piloting was done in the week before Xmas and holidays, that is why we
  After the amendments we soft launched with 10 people, it worked OK and we went on
  -C**haracteristics of pilot respondents**
  People of different age – 18, 25, 32, 45, 58; 2 males and 3 females; 2 with secondary and 1 with university education, 2 with non-complete secondary education

Changes applied in the q-re after soft-start

After the pilot interviewing, we realized we had to add some more variables:

- ***Age variable, in order to check the year of birth***
- ***RPML1 Use of nuclear technology for military purposes*** – it was definitely missing the in the q-re – but Bulgarians had such experience with the USA bombs over Serbija and there was peak of cancer cases afterwards . Of course you can ignore and erase this variable

- ***T11 Have you heard/seen any Information, disseminated by these institutions about radon?*** – this question was definitely necessary, because there was no a filtering question before asking whether the respondent trust that information. The pilot respondents were confused how to answer, because in Bulgaria none of these institutions speaks about radon, or not publicly enough.

Description of quality control

Method

Control via platform via JPS, registered LOI, and with the respondent signature
Control via telephone back-calls (CATI)

Control indicators:

Age, gender and residence place
Does the respondent recall having an interview within the last month
Recalled topic of the interview
If not recalled spontaneously: whether they had been interviewed about radon
Can they recall having seen a video ?
About what was it?
Approximate LOI

H**ow many respondents are back-checked** – contacted 191 respondents, successfully reached 165.

All confirmed the conducted interview.

Excluded respondents

We haven't excluded interviews – all complete interviews are in the data base. We simply put the terminated interviews -at the end of the data base, since they were not completed as minimum 50% and they cannot be considered according to the international research criteria a quality data. You can have a look at the data in excel file - it is the same as the data file in SPSS - at the end with another numbering are the not included in the final data interviews.

510 refused to answer and were registered in our platform in special forms (ID numbers in the data base 2001 – 2510)

54 interrupted the interview, the others refused (ID numbers in the data base 3001-3054)
311 refused to speak at all and were not registered anyhow

Feedback from respondents - spontaneously received

- Most of the obtained spontaneous reactions concerned the LOI. All interviewers shared the opinion of many of their respondents that the interview was perceived as long and boring
  - because of the many questions in the form of long statements
  - because some of close-end answers, which do not differ significantly – they puzzled the respondents **INPR from 1 through 10,**
  - many questions couldn't be answered at such early level of being acquainted with the issue – 20-25% of the respondents couldn't answer - **RA35-37**
  - Respondents do not feel they can give opinion regarding the behavior or beliefs of the others **IMN 1-2**
  - ***RA41 –*** the chart didn't help, but rather confused the respondents – it took time for them to comprehend the visual information

- The video was perceived positively and it definitely cheered up the respondents . The respondents understood the information but the reactions were very controversial:

  - the younger urban respondents above 30 with higher education got interested;

  - Some older ladies started to worry about the hazard and that they wouldn't be able to pay for the test and in-door rehabilitation;
  - some men 50 – 60 y.o. were skeptical regarding the provided information:
    =it might be not real hazard, but an exaggerated manipulation in order to provoke the population to spend money;
    = such spending (on radon checks) can afford only the more affluent people – that is rather a luxury than a necessity;
    = "Bulgarians have survived Chernobil contamination, several crises and the Covid pandemic and they would survive also this hazard"

- Final questionnaire in appendix (Attached)

The report is prepared by Tsvetelina Stoyanova, Project Manager

APPENDIX

Structure of the Bulgarian population – from the latest census 2021

Regions	Total			Urban			Rural		
	Total	Males	Females	Total	Males	Females	Total	Males	Females
Total	**6838937**	**3311311**	**3527626**	**5000496**	**2396362**	**2604134**	**1838441**	**914949**	**923492**
Blagoevgrad	4,36%	2,12%	2,24%	3,61%	1,72%	1,89%	6,41%	3,20%	3,21%
Burgas	5,98%	2,88%	3,10%	6,22%	2,96%	3,26%	5,31%	2,66%	2,65%
Varna	6,85%	3,33%	3,52%	7,81%	3,78%	4,03%	4,25%	2,13%	2,12%
Veliko Tarnovo	3,30%	1,59%	1,71%	3,16%	1,51%	1,65%	3,69%	1,82%	1,87%
Vidin	1,15%	0,56%	0,59%	1,02%	0,49%	0,53%	1,51%	0,74%	0,76%
Vratsa	2,25%	1,10%	1,15%	1,81%	0,87%	0,94%	3,43%	1,71%	1,72%
Gabrovo	1,51%	0,73%	0,79%	1,65%	0,79%	0,86%	1,13%	0,56%	0,58%
Dobrich	2,45%	1,18%	1,26%	2,29%	1,09%	1,20%	2,86%	1,43%	1,43%
Kardzhali	2,35%	1,16%	1,19%	1,29%	0,62%	0,67%	5,25%	2,65%	2,60%
Kyustendil	1,66%	0,80%	0,85%	1,58%	0,76%	0,82%	1,87%	0,93%	0,94%
Lovech	1,75%	0,85%	0,90%	1,48%	0,71%	0,77%	2,49%	1,22%	1,26%
Montana	1,79%	0,87%	0,92%	1,56%	0,75%	0,81%	2,40%	1,20%	1,20%
Pazardzhik	3,62%	1,76%	1,85%	3,10%	1,50%	1,61%	5,02%	2,50%	2,52%
Pernik	1,73%	0,84%	0,89%	1,84%	0,88%	0,96%	1,41%	0,71%	0,70%
Pleven	3,34%	1,61%	1,72%	3,02%	1,44%	1,58%	4,20%	2,08%	2,12%
Plovdiv	9,69%	4,65%	5,04%	9,95%	4,73%	5,22%	8,98%	4,43%	4,55%
Razgrad	1,58%	0,77%	0,81%	1,00%	0,48%	0,53%	3,13%	1,55%	1,58%
Ruse	3,06%	1,49%	1,57%	3,22%	1,56%	1,66%	2,63%	1,30%	1,33%
Silistra	1,53%	0,75%	0,79%	0,92%	0,44%	0,48%	3,21%	1,59%	1,62%
Sliven	2,63%	1,28%	1,36%	2,35%	1,12%	1,23%	3,41%	1,70%	1,71%
Smolyan	1,45%	0,70%	0,76%	1,13%	0,54%	0,59%	2,33%	1,13%	1,20%
Sofia district	19,12%	9,18%	9,93%	24,97%	11,98%	12,99%	3,21%	1,59%	1,62%
Sofia city district	3,42%	1,68%	1,74%	2,77%	1,34%	1,43%	5,17%	2,59%	2,58%
Stara Zagora	4,49%	2,17%	2,32%	4,29%	2,05%	2,24%	5,04%	2,51%	2,53%
Targovishte	1,58%	0,77%	0,81%	1,17%	0,56%	0,62%	2,69%	1,35%	1,34%
Haskovo	3,22%	1,57%	1,65%	3,16%	1,53%	1,63%	3,39%	1,70%	1,69%
Shumen	2,48%	1,21%	1,27%	2,03%	0,97%	1,06%	3,69%	1,84%	1,84%
Yambol	1,67%	0,82%	0,86%	1,58%	0,76%	0,82%	1,92%	0,96%	0,96%