WBC-INCO.NET

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Report on survey results reflecting priorities stemming from civil society and the business sector

Statistical analysis of the Priority setting to structure participation in EC Framework Programs survey

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1 Executive summary

The possibility of informing the European Commission about **specific research topics of relevance for the Western Balkan countries (WBC)** with the view of integrating these in the work programmes of the Framework Programme (FP, is the starting point for the WBC-INCO.NET project. The identification of such topics was resting on:

- The identification of topics of common interest for the WBC and the EU in the FP;
- Their policy relevance, for WBC and EU in general, and especially for the enlargement process;
- The identification of topics on special research niches (= strengths) in the WBC.

The S&T prioritisation for national policy-making in the area of R&D, and determination of joint priorities across WBCs has been done in two steps.

1. Identification of suitable priorities from a national perspective;
2. Search for joint priorities across WBC, based on shared or complementary themes emerging from the first step.

In order to structure participation of researchers from Western Balkan countries in research programmes of the European Union, regional research priorities for the West Balkan countries have been obtained as results of consultation sessions in the fields of Information and Communication Technologies (ICT), Agro Food, Health, Transport and Environment.

As a second part of this project's work package, a web-based survey was conducted. The web-based survey consisted of two parts. The first part was dealing with collecting personal opinions about priority settings, and the second part was dealing with comments on the set of priorities selected by Western Balkan countries' science & research communities.

The questionnaire included personal opinions and all stakeholders: Education and Research, Business and Social communities; and it was disseminated through respondent's base of all Western Balkan countries (Albania, Bosnia and Herzegovina, Croatia, FYR Macedonia, Kosovo under UNSCR 1244, Montenegro, and Serbia).

To conduct the statistical analyses of the survey, data were imported and properly coded in SPSS 15.0. For a general description concerning the population that answered the survey and its general attributes (first part of survey), single and multiple pie chart and graph were used.

This survey analysis is unique for several reasons. The first one is that in WBC there has neither been a survey conducted yet regarding broader society opinions on priorities in science, research and development. Also there hasn't been any inquiry about the interest of the same groups of respondents for the development of science, basic and/or applied research.

Moreover, the responding sample was a very competent one according to the level of education and knowledge about science and research shown by the respondents. The survey, as a first one of this kind, and its results satisfied the expectations of this project activity.

In addition, conclusions from the results of the survey have been crucial and can be summarized in the following:

Survey respondents from Western Balkan countries chose as national priorities the same fields of science (research themes) as in WP2 of the WBC.INCO.NET project – Priorities setting in order to structure participation of researchers from Western Balkan countries in

research programmes in the European Union. So-called **regional research priorities** for the Western Balkan countries are identified as results of the consultation sessions in the fields of Information and Communication Technologies (ICT), Agro-Food technologies (AF), Health (HEA), Transport (TRA) and Environment (ENV).

- More than 85% of all respondents both from WBC and other countries are strongly "Satisfied", "Fully agree" or "Partly agree" with defined priorities in all priority areas.
- The results reveal that in Serbia, Bosnia and Herzegovina and the FYR of Macedonia respondents give priority to Agricultural Sciences, ICT and then Ecology, while in Albania and Croatia priority was given to ICT, and then Agricultural Sciences. Respondents are most interested in the developments of Information and Communication Technologies and in Social Sciences, on the third rank are Ecology/Environment/Earth Sciences; Agricultural and Food Sciences are on the fourth rank, and the least favourable science field is Pharmacology.
- Finally, the majority of respondents from Albania are interested in ICT developments, followed by respondents from Serbia, for which ICT is on the second place, after Social Sciences. Allocation of interest in S&T development in Bosnia and Herzegovina and the FYR of Macedonia is similar and almost equally divided between ICT and Ecology/Environment/Earth Sciences.

2 Introduction

This report involves the statistical analysis of the answers to an online questionnaire distributed to respondents from WBC by Internet, as a survey whose main aim was to contribute to the above mentioned objectives of the WBC.INCO.NET project. The statistical analysis of the survey reflecting priorities stemming from civil society and the business sector was based on an online questionnaire designed in the framework of the WBC-INCO.NET project (see Annex I). The web-based survey consisted of two parts. The first part was dealing with collecting personal opinions about priority settings, and the second part was dealing with comments on the set of priorities selected by Western Balkan countries (WBC) science & research communities. This set of priorities were identified in order to structure participation of researchers from Western Balkan (WB) countries in research programmes of the European Union: regional research priorities for the West Balkan countries, as results of the consultation sessions in the fields of Information and Communication Technologies (ICT), Agro Food, Health, Transport and Environment.

The questionnaire included personal opinions and all stakeholders: Education and Research, Business and Social communities; and it was disseminated through respondents' base of all WB countries (Albania, Bosnia and Herzegovina, Croatia, FYR Macedonia, Kosovo under UNSCR 1244, Montenegro, and Serbia). Dissemination was helped by:

1. the National Contact Point (NCP) System in West Balkan countries;
2. the Enterprise European Network (EEN) - South and East Balkan countries (SEB) – a network of consortia consisting of organizations and institutions throughout Europe, and broader (for this purpose only from SEB including mostly WBC) dealing with improvement of innovation performance, technology transfer and internationalization of national technologies;
3. the Balkan academic network – project team's personal contacts consisting of individuals working in science and research organizations and institutions and universities;
4. WBC NGOs network - mostly women entrepreneurs associations.

The responding sample was a very competent one according to their level of education and knowledge about science and research. The questionnaire was aiming at the parts of civil society and business sectors that could be potentially interested in S&T per se or in S&T results. So the aim of the survey was to reach people that although not necessarily working as researchers or scientists, they have a basic knowledge/ interest in these issues and get their opinion regarding S&T priorities., In this regard the survey succeeds into mapping the interests and opinions of that particular "segment" of people.

In the following sub-sections, the methodology as well as the results of the statistical analysis of the questionnaire are presented, accompanied by several graphics and short conclusions. Each subsection is formatted briefly as follows:

- The questions under investigation are presented followed by a summary of the general outcome that can be derived either by descriptive statistical analyses of single questions, or by combining (cross-tabulating) 2 questions in order to derive rational combined conclusions.
- Single and multiple bar charts are presented to graphically present outcomes where appropriate.

3 Methods

Initially, the questionnaire was sent to 1484 individual e-mail addresses, and the response rate was 28% (421 cases). The E-mail addresses were chosen deliberately with the intention of covering a target group concerning country, occupation, employment status, gender, age group and residence.

Some of the respondents were asked to disseminate the questionnaire throughout their networks – namely 3 NGOs, 7 NCPs, 4 EEN. However, the amount of additional questionnaires sent out can only be estimated on 30% (or additional 400 addresses) approximately.

To conduct the statistical analyses of the survey, data were imported and properly coded in SPSS 15.0. For a general description concerning the population that answered the survey and its general attributes (first part of survey), single and multiple pie chart and graph were used. All graphs were generated using either SPSS 15.00 or MS Excel 2003.

In order to correlate several variables (answered questions) of the survey, the method of cross-tabulation was utilized. To determine statistical significance among cross-tabulated variables, Pearson chi-square test was used at 95% significance level (p-value<0.05).

But some data did not satisfy the conditions of applying the chi-square test; in that case we used just descriptive analyses. This observation is related to the number of clients who answered the questions in each observed category.

In some cases two or three categories were analysed together in order to comply with the chi-square test.

3.1 The Sample

The majority of survey respondents are from Serbia – about one half, more than one quarter was from Bosnia and Herzegovina, almost 10 percent from the FYR of Macedonia, and the lowest response was from Montenegro - les than 1 percent. The majority are women. The results reveal that one third of respondents are from a younger age group (20-35), and almost the same percentage is from an elder age group, but forty percent of them are between 35 and 50 years old.

The vast majority are employed and live in large towns, ten percent are self-employed, and about thirty percent live in small or middle sized towns. Almost all are well educated with highest educational degrees, working in university and state owned research organisations. As mentioned in the introduction, the questionnaire was aiming at the parts of civil society and business sectors that could be potentially interested in S&T per se or in S&T results. Finally, more than forty percent, as a matter of fact a vast majority of respondents, are working in the public sector; about thirteen are from the private sector.

3.2 Technical observations on the survey

After collecting the answered questionnaires of the survey, a total of 421 cases were initially imported to SPSS which were subject to quality filtering as follows:

- Removal of cases with missing gender information (information needed for purpose of gender dimension of sample's social analysis),
- Only for Part I of the survey: Removal of cases where the country of residence was not in the 7 countries mentioned above, to which the survey focused on. In Part II of the survey, also answers from other countries were used as control group.

The case filtering described above yielded a total of 303 valid cases for Part 1 and 423 valid cases for Part II to be used for the main statistical analysis procedure. Those cases also contained certain unanswered questions which are declared as missing values and properly coded in SPSS.

Overall, the methodology followed through this document (statistical as well as graphic representations and informative tables) complies with statistical standards of the related statistical tests, which are used to qualify the relation of statistical data.

4 Part I - Descriptive statistics of general information

In the following analysis the participants of the survey who answered the questionnaire will be referred to as “respondents” through the rest of this document independently of their professional identities (such as professors, researchers, individuals working in other sectors as well as students and unemployed persons). We have to point out that the answers to the questionnaire included only personal opinions, unlike in the first phase of prioritization, in which individuals represented certain institutions from S&T sectors and other stakeholders in the national innovation system (NIS).

Descriptive analysis of the Sample

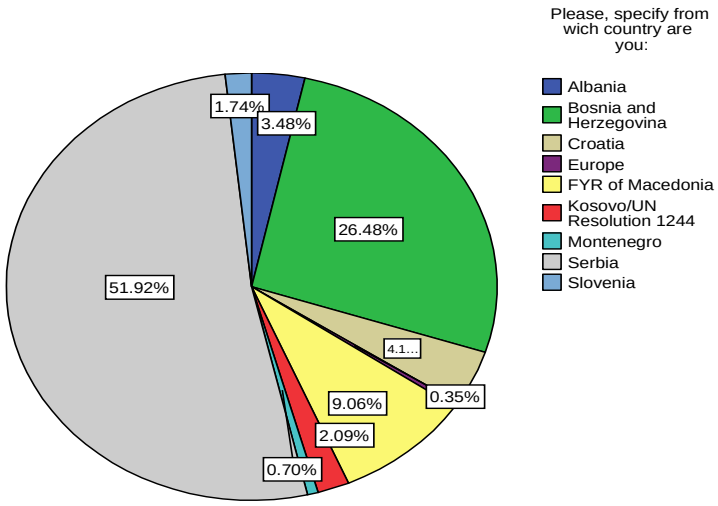


Figure 1: Pie chart depicting the country of residence of the respondents

In Figure 1 it becomes apparent that the vast majority of respondents reside in Serbia, followed by Bosnia and Herzegovina and the FYR of Macedonia. Montenegro had the fewest respondents completing the questionnaire from the Western Balkan countries. In Part I of this report, answers from countries other than the Western Balkan countries were not taken into account.

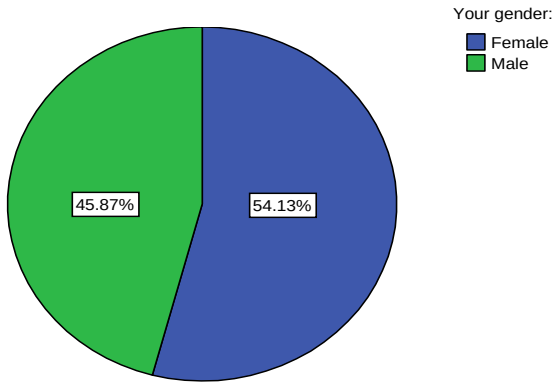


Figure 2: Pie chart showing gender distribution included in survey

Figure 2 reveals that the majority of respondents are women 54%, compared to 46% of men.

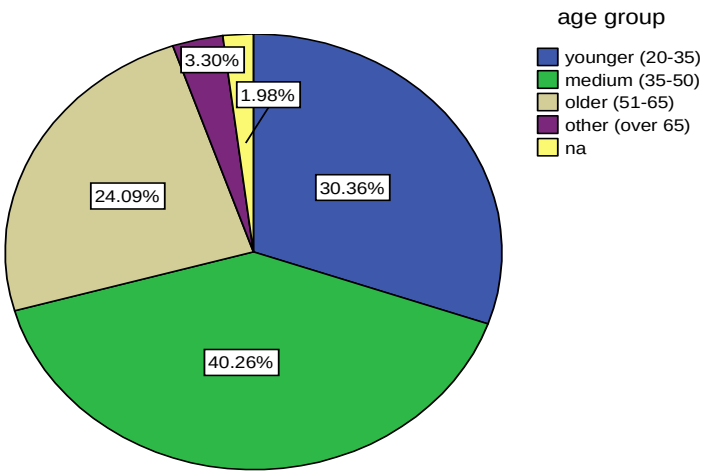


Figure 3: Pie chart presenting age groups of respondents

Figure 3 shows that one third of respondents are from the younger age group, and almost the same percentage is from the older age groups, 40% of them are from medium age group.

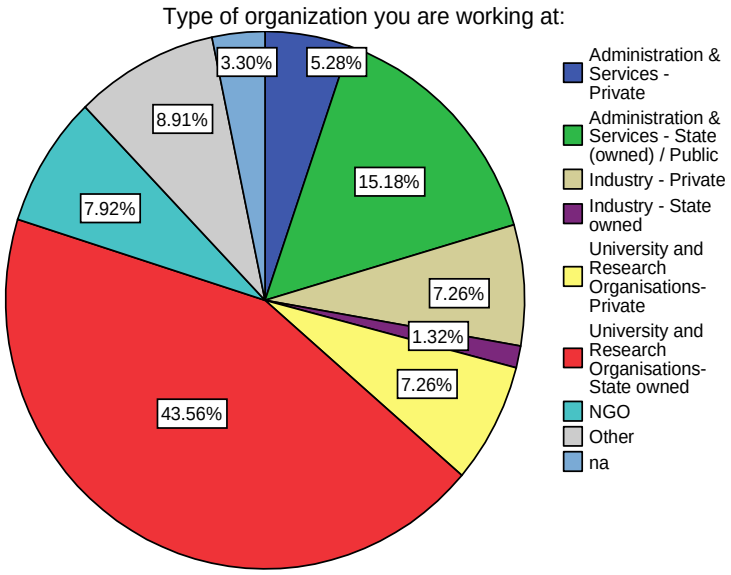


Figure 4: Pie chart presenting type of organization at which respondents are working

Figure 4 reveals that the vast majority (70%) of respondents are working in the public sector and about 13 % are from private sector. It also reveals that almost half of the respondents work for Universities and State owned research organizations (43, 56%).

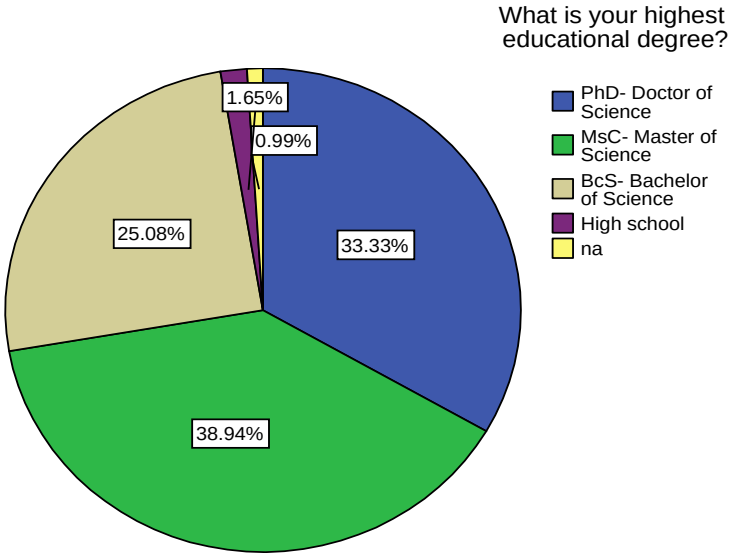


Figure 5: Pie chart presenting percentages of educational degree of respondents

Figure 5 reveals that almost all respondents have degrees from Higher Education institutions, exactly 33, 33% of them have PhD degrees.

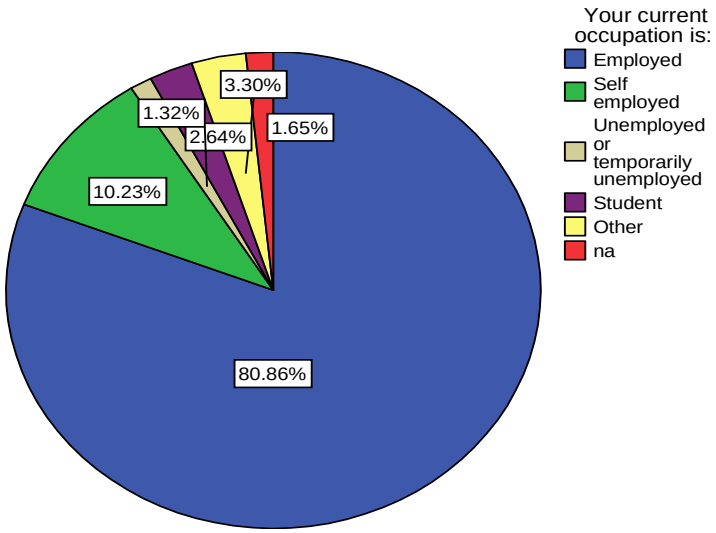


Figure 6: Pie chart presenting respondents' current occupation

Figure 6 depicts that a majority of respondents are employed (80%), followed by a much smaller percentage of self-employed people (10 %).

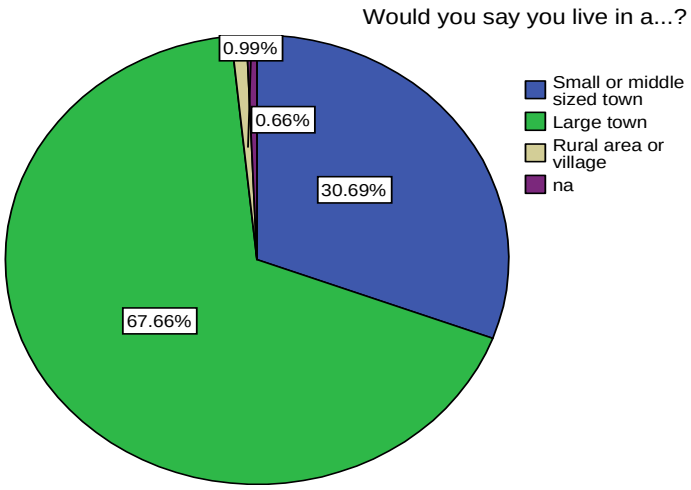


Figure 7: Pie chart presenting percentage settlements variety in which respondents live

Figure 7 reveals that the vast majority (68%) live in large towns and only 1% in rural area and villages.

The following subsection of the report presents basic descriptive statistics for the majority of the survey questions together with certain basic comments.

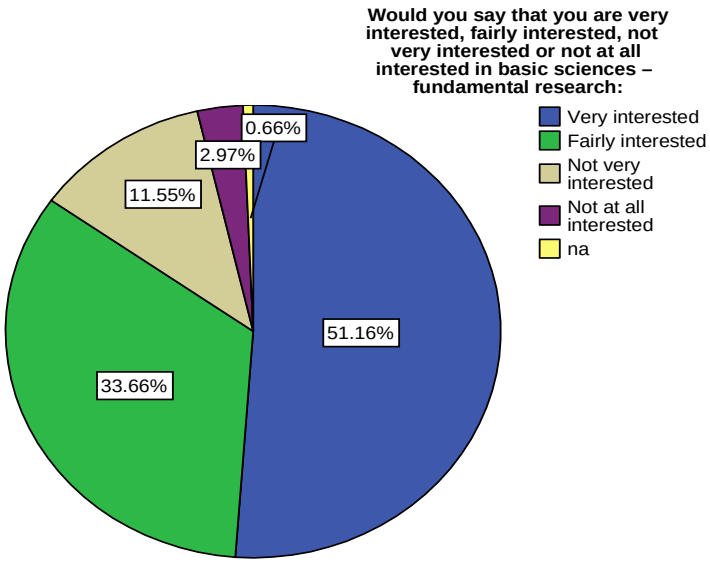


Figure 8: Pie chart depicting interest in basic sciences – fundamental research

In Figure 8 it becomes apparent that the majority of respondents are interested in basic sciences and fundamental research, followed by one third of respondents being fairly interested.

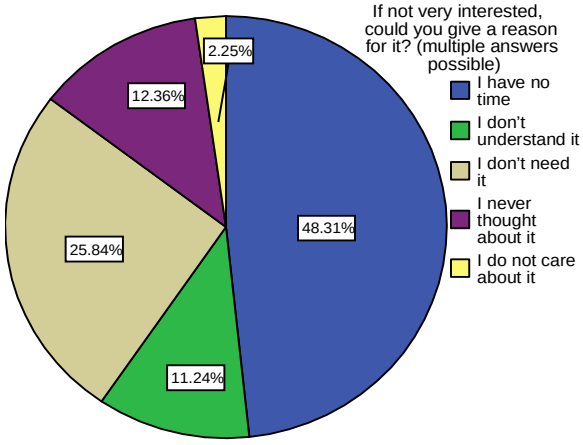


Figure 9: Pie chart* depicting reasons for not being interested in basic research

** Using SPSS 15.5 each answer from the multiple answers set was coded with 0, or 1, (yes, or no). This gave possibility to define Multiple Response Set, and after that in the Option Chart builder to use the pie chart option.*

Figure 9 reveals that almost 50% of respondents who are not interested have no time to deal with this subject, and more than one quarter don't need to be informed about developments in basic research, these are the most categorical answers in describing the lack of interest.

Analysis of question 1, by socio-economic and socio-demographic characteristics

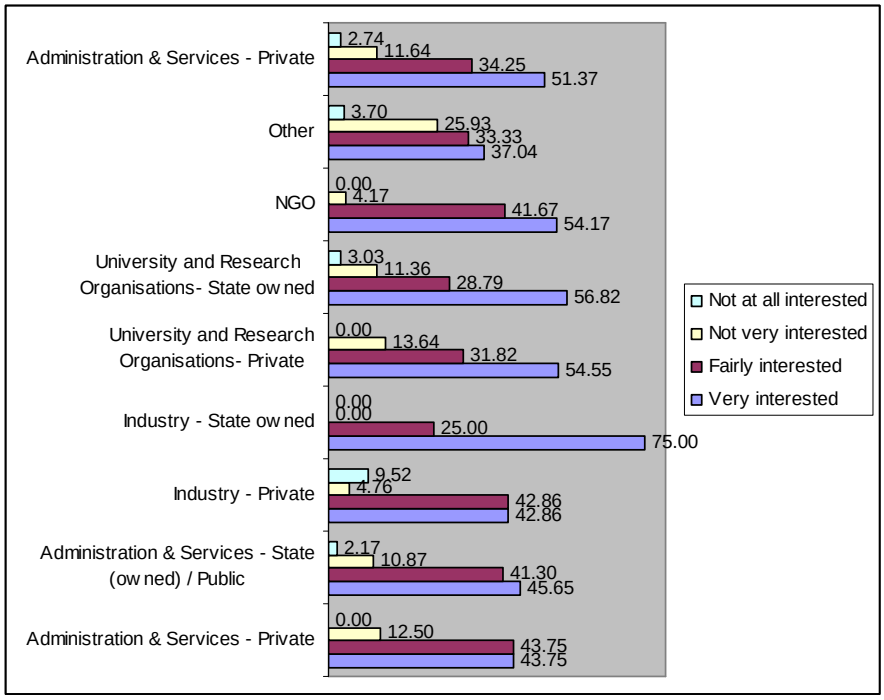


Figure 10: Chart depicting interest in basic research by type of organization to which respondents belong

Figure 10 examines the correlation between affiliation of respondents and their interest in basic research. It appears that employees in the state owned industry are most interested in these developments (75%), and on the contrary employees in the private industry are lesser interested (42,86%) and even not at all interested according to 9,52% of answers.

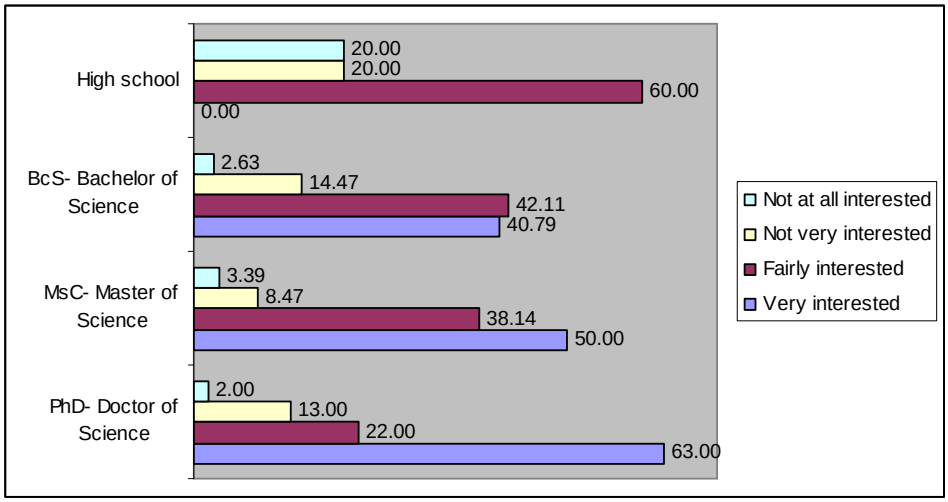


Figure 11: Chart presenting interest in basic research by level of education – educational degree of respondents

Figure 11 examines the correlation between the educational degree of respondents and their interest in basic research. It is obvious that respondents with the highest degree (PhD) are the most interested in basic research (63%), followed by MSc (50%). However, we have to notice that the educational level of respondents was not represented in full scale, since we didn't have respondents with primary school education.

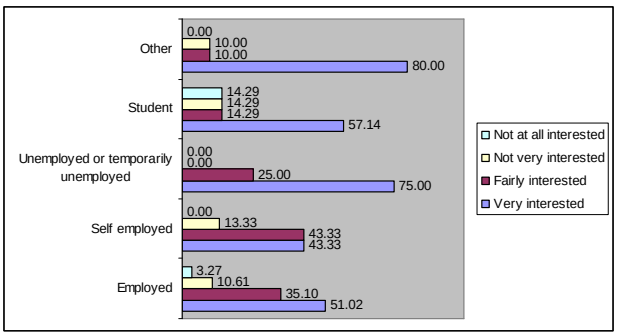


Figure 12: Chart presenting interest in basic research by current occupation of respondents

Figure 12 examines the correlation between respondents' current occupation and their interest in basic research development. The majority of respondents are employed and they are mostly very interested (51, 02%) or fairly interested (35, 10%). Self employed respondents are equally very and fairly interested. However, the other three groups of occupation are very weakly represented, and according to this, we couldn't take their answers as a representative sample. As a matter of fact, they all are very interested in the issue and one possible conclusion is that it was one of the reasons for participation in our survey.

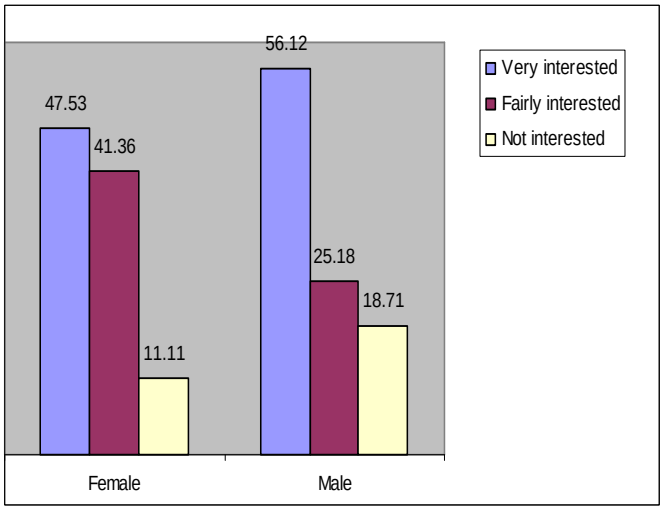
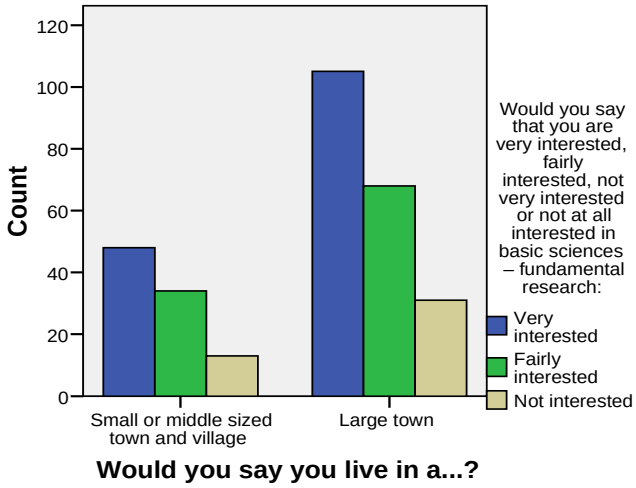


Figure 13: Chart presenting interest in basic research by respondents' gender

The results of the statistical analysis showed that the level of interest in basic science depends on gender (statistical significance p = 0.007). The chart in Figure 13 depicts that men are more decisive (or, one could say, the discrepancy between "very interested" and

"fairly interested" is much greater than in women) about the attitude if a person is very interested (56.12%) or fairly interested (25.18%), while women are far less decisive (very interested 47.53% and 41.36% fairly interested). On the other hand, more men (18,71%) than women (11,11%) are not interested in basic research development.



Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	.227(a)	2	.893
Likelihood Ratio	.227	2	.893
Linear-by-Linear Association	.004	1	.950
N of Valid Cases	299		

Figure 14: Chart presenting interest in basic research by residence of respondents

Search chi-square test (statistical significance = 0,893) showed that the size of the residence of the respondents does not affect to a statistically significant extent the degree of their interest in basic science. In the graphic in Figure 14 it becomes apparent that the level of interest for basic science is similar, regardless of the place of residence.

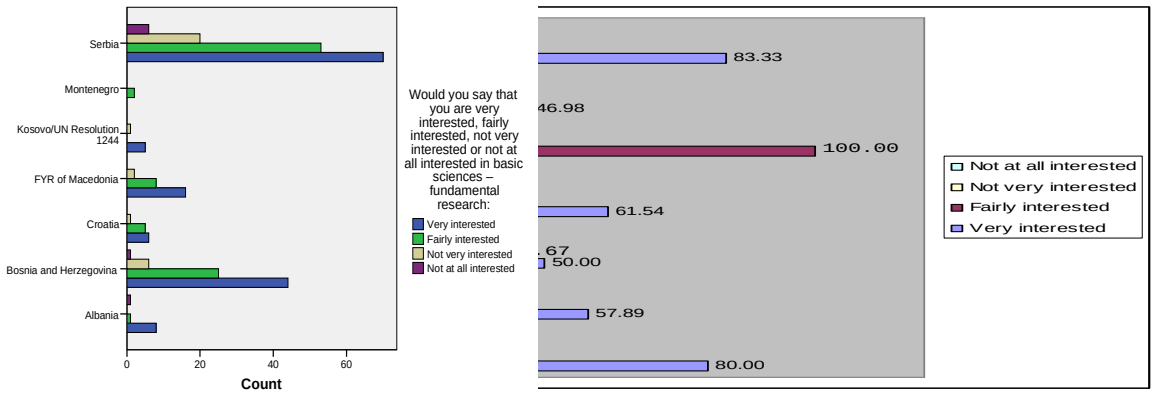
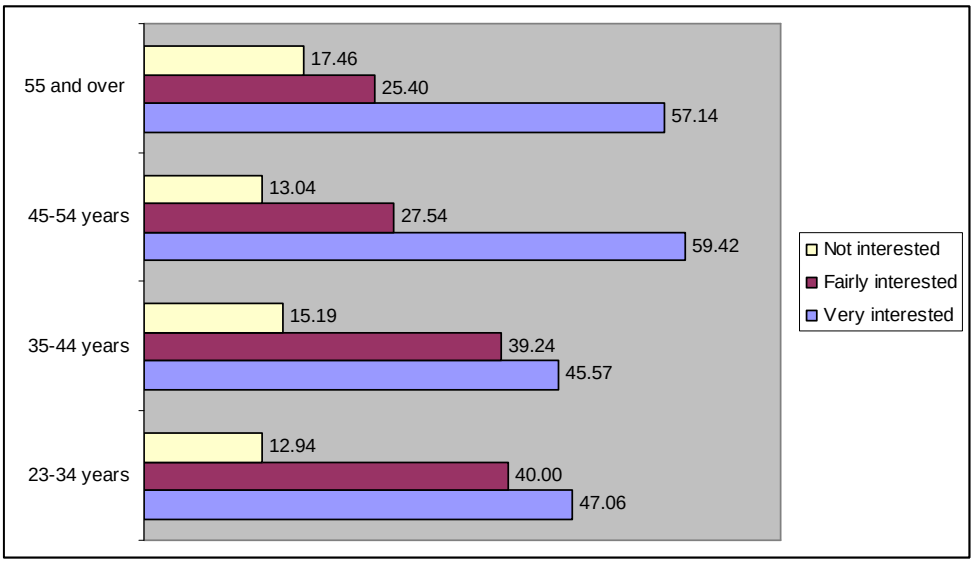


Figure 15: Charts presenting interest in basic research by respondent's country of residence

As it shown in figure 1, the majority of respondents are from Serbia, followed by Bosnia and Herzegovina and the FYR Macedonia, thus they could be taken as a representative sample

in this survey. Concerning these three countries, the first part of Figure 15 depicts almost the same interest in basic research development in WBC.



Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	6.511(a)	6	.368
Likelihood Ratio	6.573	6	.362
Linear-by-Linear Association	.765	1	.382
N of Valid Cases	296		

Figure 16: Chart presenting interest in basic research by respondents' age

The value of the chi-square test (statistical significance p = 0.368) indicates that the level of interest in basic science was not statistically significant regarding age groups. As Figure 16 reveals, within each group subjects were primarily very interested and fairly interested, and a minority was not interested

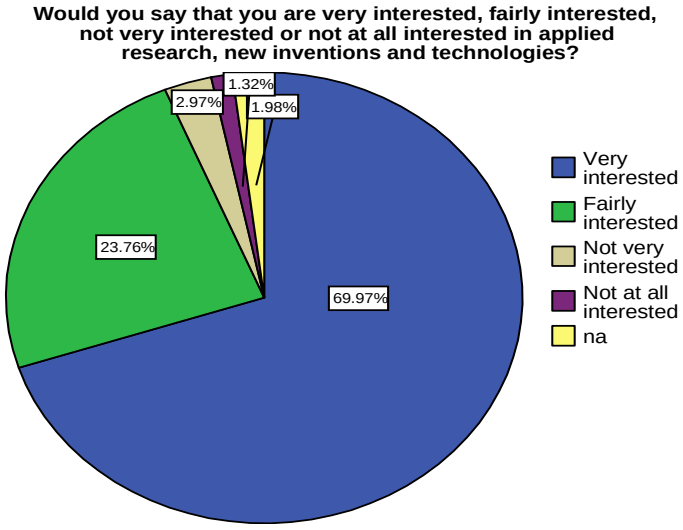


Figure 17: Pie chart depicting interest in applied research, new inventions and technologies

From figure 17 it becomes apparent that the vast majority of respondents (69,97%) are interested in applied research, new inventions and technologies, followed by a quarter of fairly interested (23,76%).

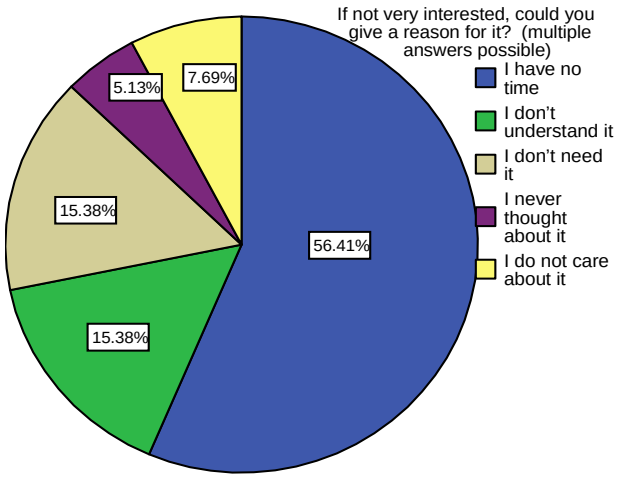
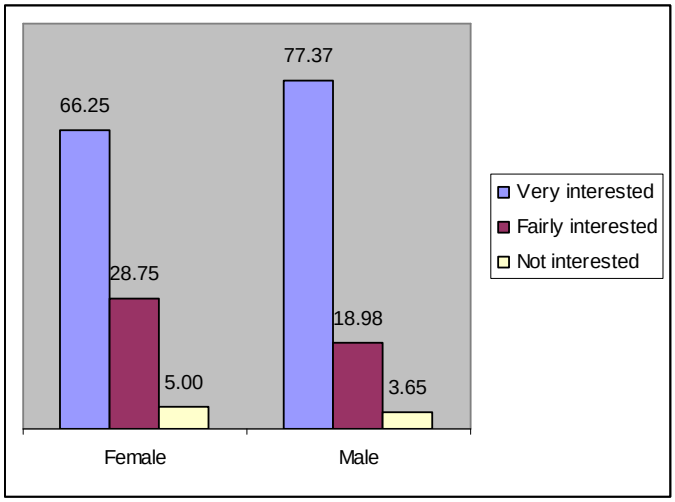


Figure 18: Pie chart depicting reasons for not being interested in applied research, new inventions and technologies

Figure 18 depicts very similarly to Figure 2 that more than 50% of those respondents who are not interested have no time to deal with these subjects, and about 15% don't need to be informed about basic research, or don't understand it respectively.

Analysis of question 3. By socio-economic and socio-demographic characteristics



	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	4.494(a)	2	.106
Likelihood Ratio	4.545	2	.103
Linear-by-Linear Association	3.708	1	.054
N of Valid Cases	297		

Figure 19: Chart depicting interest in applied research, new inventions and technologies by gender

The statistical analysis in Figure 19 shows that there are no statistically significant differences (statistical significance p = 0,106) between men and women in terms of interest in applied research in contrast to Figure 6 for basic research; but more men show are very interested in applied research than women. However, more women are fairly interested in applied research than men.

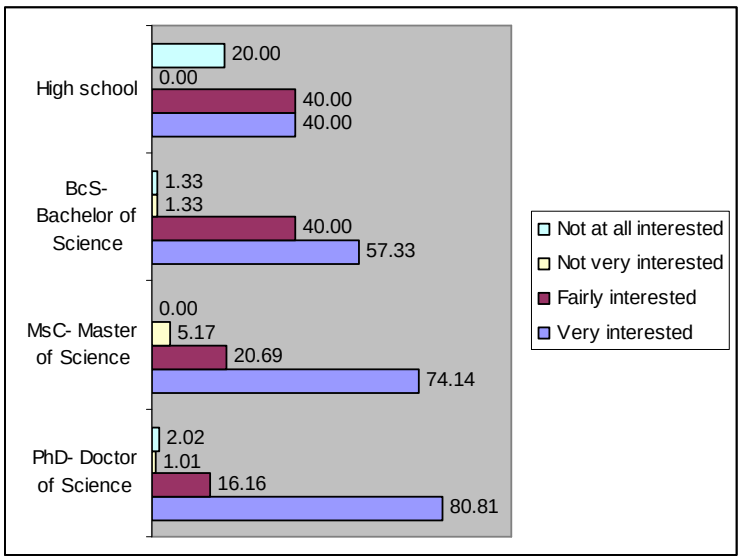


Figure 20: Chart depicting interest in applied research, new inventions and technologies by level of education/educational degree of respondents

Figure 20 examines the correlation between educational degree of respondents and their interest in applied research, new inventions and technologies. Similar to Figure 4, it is obvious that in respondents with highest degree (PhD) there is the highest percentage of very interested respondents in basic research (80, 81%), followed by MSc (74,14%). We have to underline that within respondents with high school education 20% percent are not at all interested.

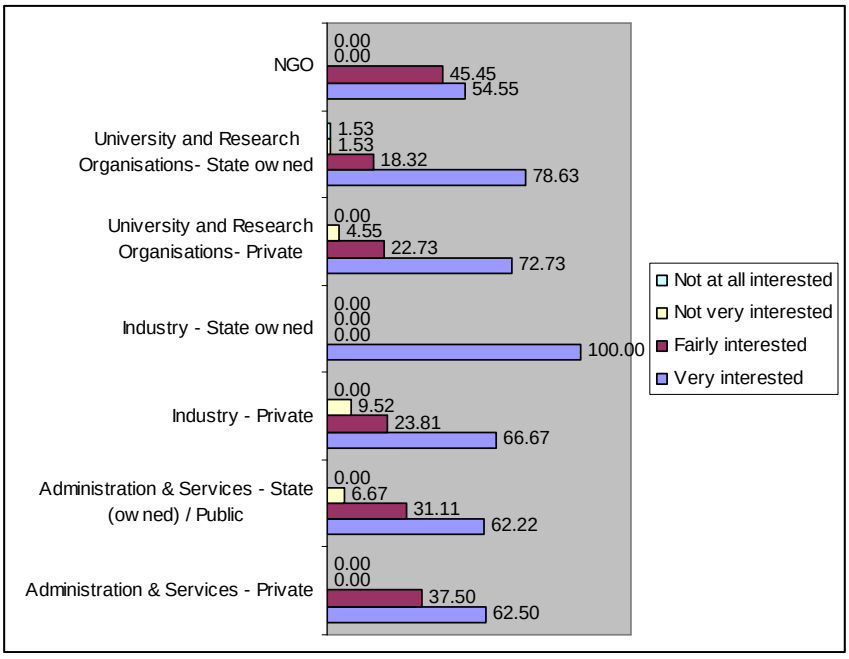


Figure 21: Chart depicting interest in applied research, new inventions and technologies by type of organization to which respondents belong

Figure 21 examines the correlation between affiliation of respondents and their interest in applied research. It appears that employees in state owned industry are most interested in these developments (100%), followed by state owned university and R&D organizations (also state owned 78%). Employees in private industry are in this case more interested (66,67%) than in basic research (42,86%, Figure 10).

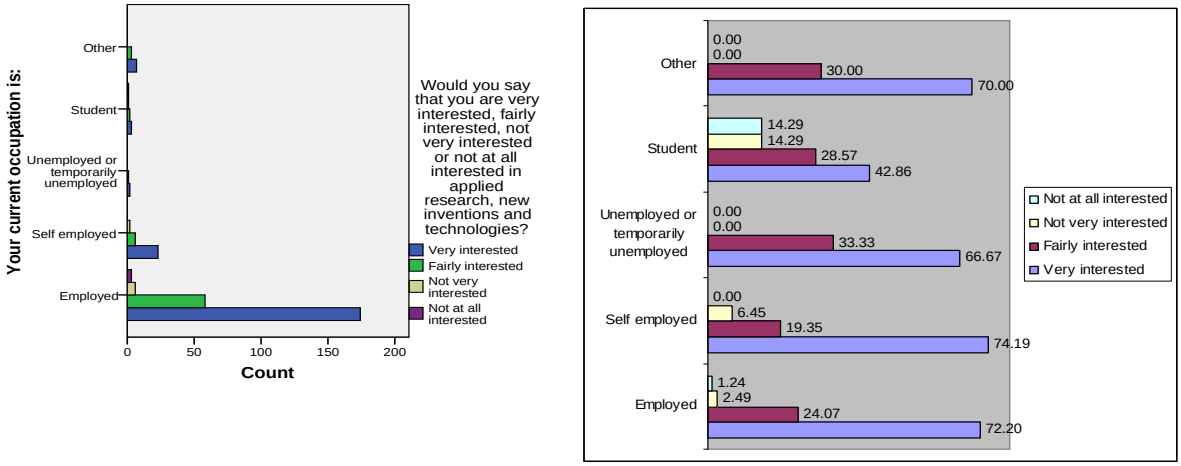
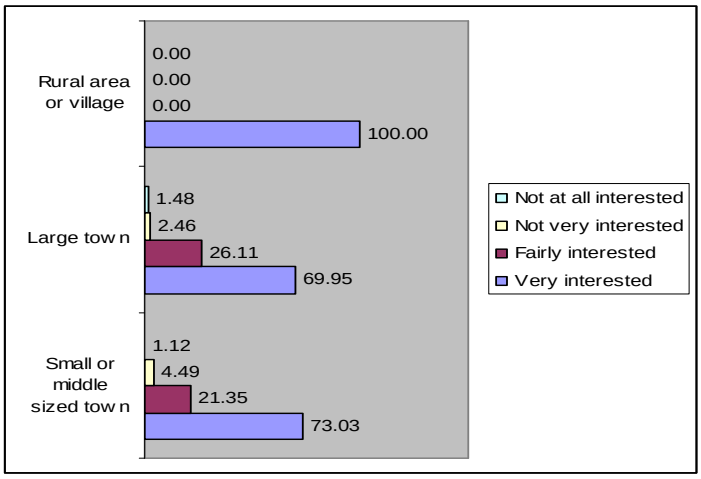


Figure 22: Charts depicting interest in applied research, new inventions and technologies by current occupation

Figure 22 examines the correlation between respondent's current occupation and their interest in basic research development. As the majority of respondents are employed (Figure 6) most of them are very interested (72,20%). Three quarters of the Self-employed respondents are very interested (74,19%), even more than the employed respondents.



Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	1.232(a)	2	.540
Likelihood Ratio	1.244	2	.537
Linear-by-Linear Association	.124	1	.725
N of Valid Cases	295		

Figure 23: Chart depicting interest in applied research, new inventions and technologies by residence of respondents

As Figure 23 shows, all respondents living in a rural area or village are interested in applied research. Keeping in mind that very few respondents (0,99%) live in the rural area or village (Figure 7), and in order to comply with the conditions of the chi-square test application, the categories „Not at all interested“ and „Not very interested“ are collectively regarded as a category „Not interested“, and the category ”rural area or village” and “small or middle sized town” are referred to as “small or middle sized town or village”.

Based on the application of the chi-square test it was noted that the level of interest in applied research is not significant (statistical significance P = 0,540) conditioned by residence of respondents, and regardless of the residence, the respondents showed a similar degree of interest for applied research.

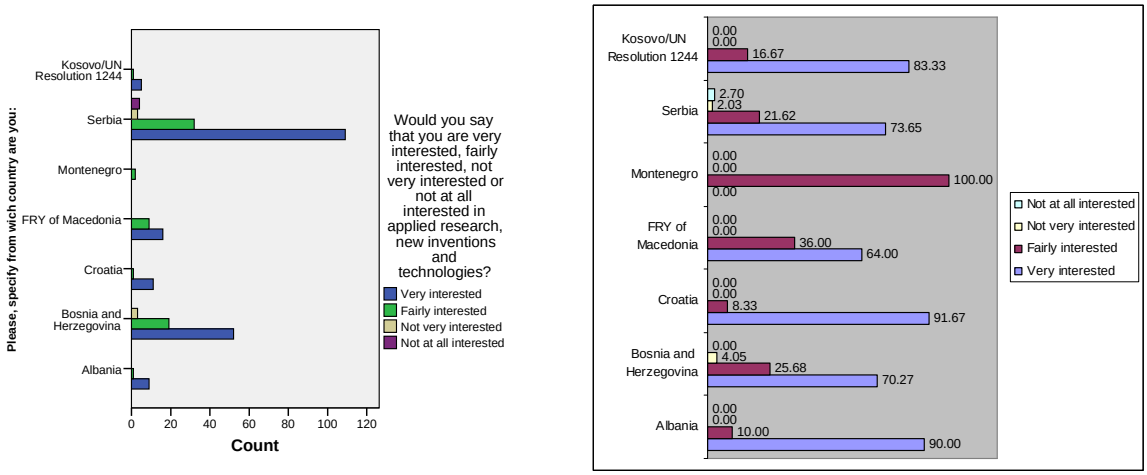


Figure 24: Charts depicting interest in applied research, new inventions and technologies by country of residence

Similar as in Figure 15, Figure 24 presents almost the same interest of the respondents in applied research as in basic research depending on the country of residence in the WBC.

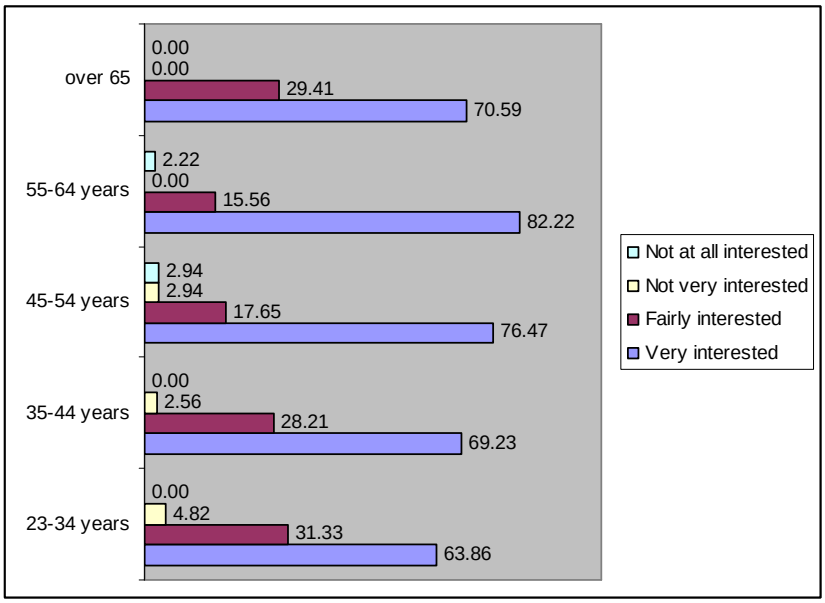


Figure 25: Chart depicting interest in applied research, new inventions and technologies by respondent's age

Figure 25 examines the correlation between respondents' age and their interest in applied research. It appears that two younger groups of respondents and the group over 65 years are less interested than the two older ones in development in applied research, new inventions and technologies.

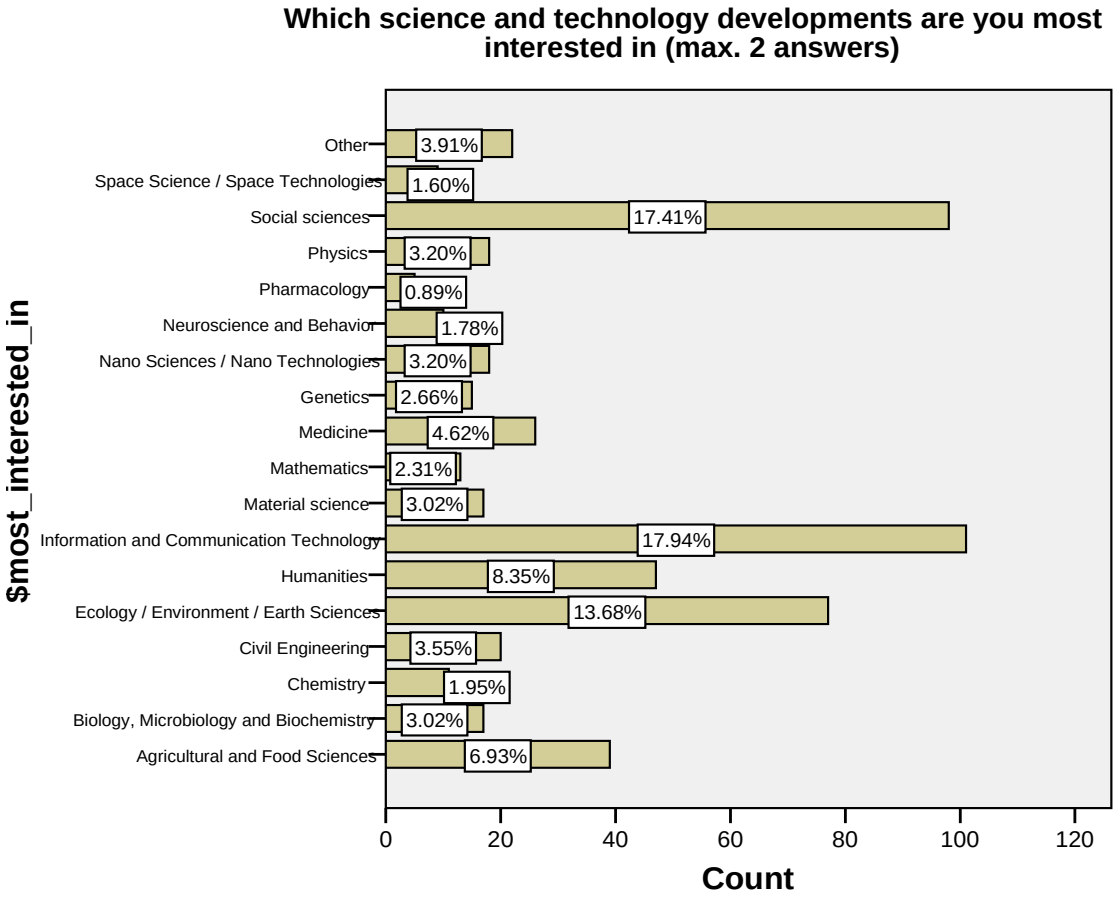


Figure 26: Bar chart presenting interest in particular science and technology area*

* *The science and technology areas in this survey are chosen according to OECD - Frascati Manuel 2002 – Main Fields of Science and Technology (Table 3.2).*

The Figure 26 bar chart reveals that respondents are most interested in Information and Communication Technologies and in Social Sciences, on the third place are the areas Ecology/Environment/Earth Sciences; the least interesting science field is Pharmacology.

Analysis of question 4. by socio-economic and socio-demographic characteristics

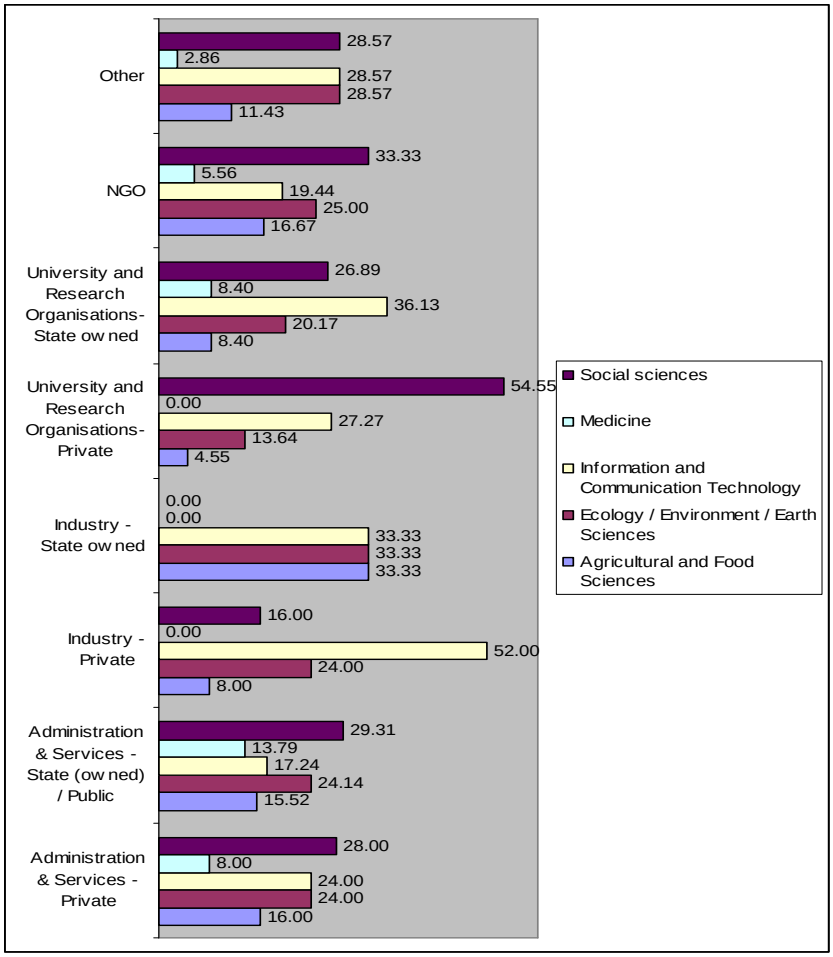


Figure 27: Bar chart presenting interest in particular science and technology areas by type of organization to which respondents belong

Figure 27 examines the correlation between respondent's interest in S&T and type of organization he works in. It appears that social sciences are most preferable between universities and private research organisations (RO) (54,55%) and NGOs (33,33%), but respondents working in private industry are mostly interested in ICT (52,00%), as well as universities and state owned RO (36,13%).

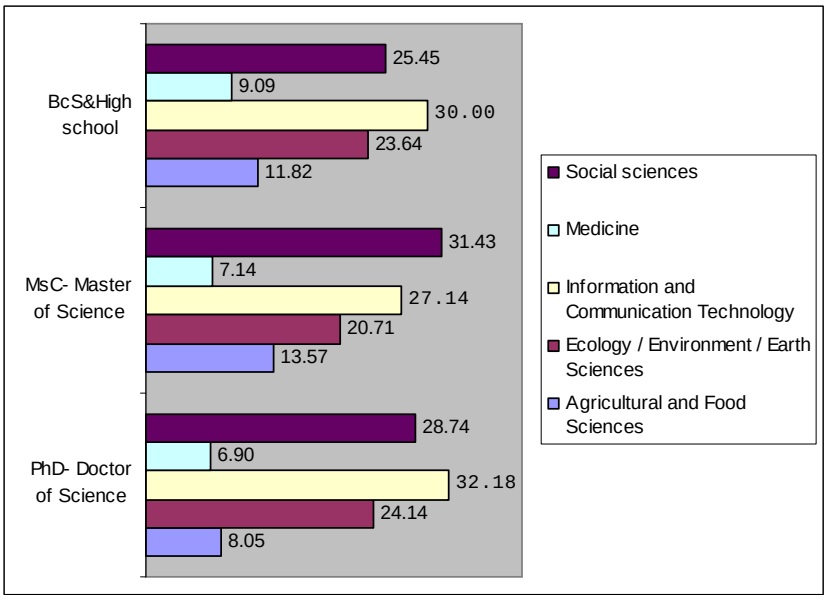


Figure 28: Bar chart presenting interest in particular science and technology areas* by educational degree

Chi-Square Tests

		14) What is your highest educational degree?
$most_interested_in_r	Chi-square	7.662
	df	10
	Sig.	.662

* *The science and technology areas in this survey are chosen according to OECD - Frascati Manuel 2002 – Main Fields of Science and Technology (Table 3.2).*

Since a very small number of respondents belong to the category „High School", in order to satisfy the conditions for applying the chi-square test we will observe this category with the BCS category.

From Figure 28 it appears that the level of education has no statistically significant influence on the interest in specific scientific fields (degree of statistical significance p = 0,662). Respondents mostly show high interest in ICT and Social Sciences, while they show low interest in medical science.

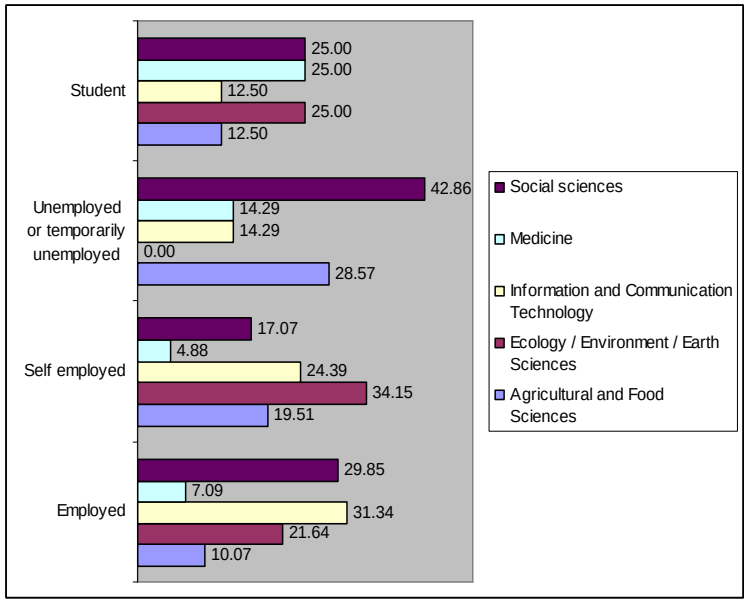


Figure 29: Bar chart presenting interest in particular science and technology areas by current occupation of respondents

From figure 29 chart it becomes apparent that the majority of respondents who are employed are interested in ICT and Social Sciences, while self-employed persons are mostly interested in the area of Ecology/Environment/Earth Sciences, however unemployed people are interested mostly in Social Sciences and Agriculture.

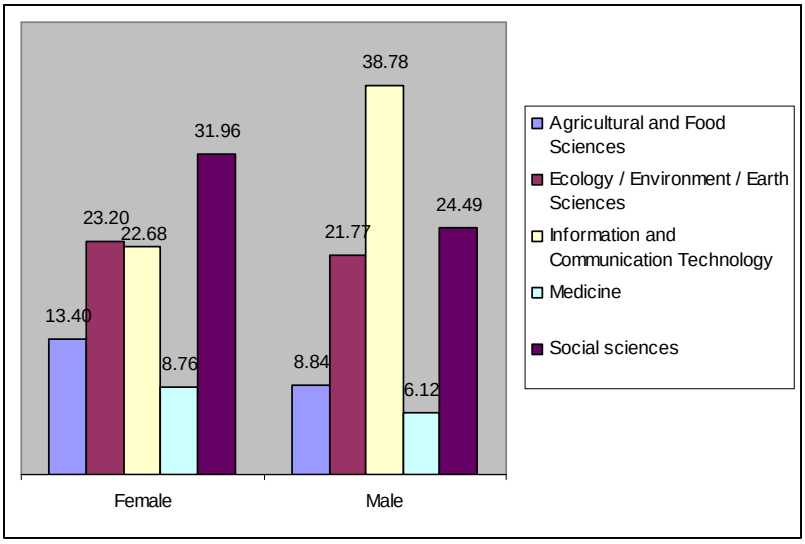


Figure 30: Bar chart presenting interest in particular science and technology areas by gender

Based on the application of the chi-square test we can see that gender affects the interest of respondents in terms of ICT (level of statistical significance p = 0.09) and Social Science (level of statistical significance p = 0027). Based on the chart we can see that women are more interested in Social Sciences than men, while men are more interested in ICT than women. The influence of gender on interest in other fields of science listed by the chi-square test results was not statistically significant (Agricultural and Food: statistical significance p = 0092, Ecology/Environment/Earth Sciences: statistical significance of p = 0379, Medicine: statistical significance of p = 0228).

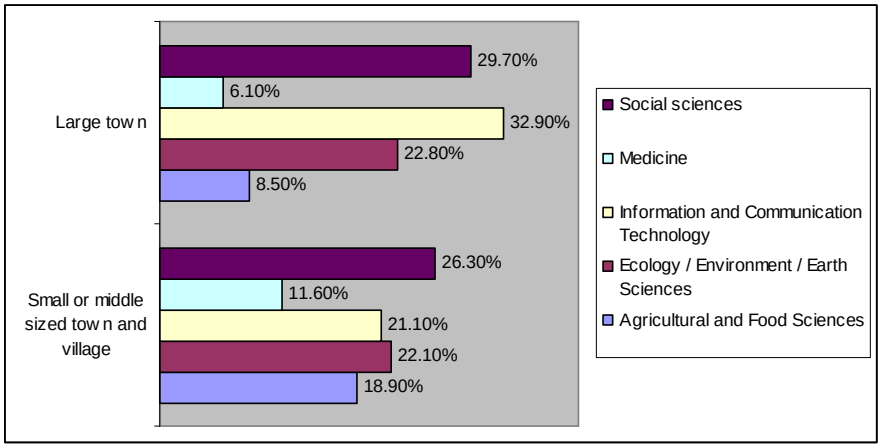


Figure 31: Bar chart presenting interest in particular science and technology areas by residence of respondents

Based on the application of the chi-square test we can see that residence of respondents affects the interest of respondents in terms of Agricultural and Food Science (level of statistical significance p = 0.037) and ICT (level of statistical significance p = 0.002). Based on the chart we can see that respondents, who live in small towns or villages, are more interested in the Agricultural and Food Science compared to respondents living in large cities. On the other hand respondents who live in big cities are more interested in ICT in relation to the respondents who live in small towns or villages. The influence of residence on the interest of other specified fields of science on the basis of the results of the chi-square test was not statistically significant (Ecology/Environment/Earth Sciences: statistical significance of p = 0335, Medicine: statistical significance p = 0223, Social Sciences: statistical significance p = 110).

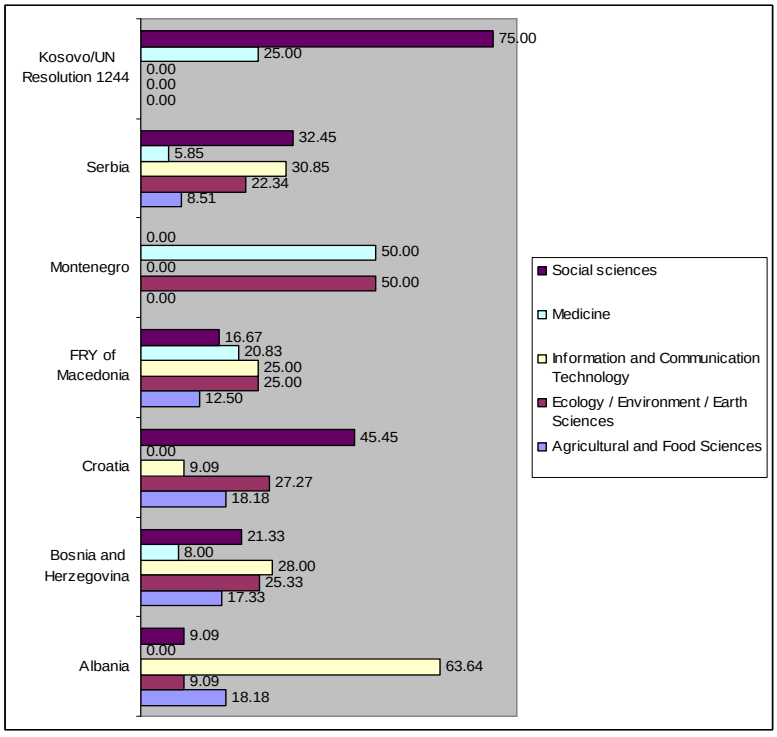


Figure 32: Bar chart presenting interest in particular science and technology areas by residence country

The bar chart of Figure 32 depicts the correlation between interests in particular science and technology areas and residence country. The majority of respondents from Albania are interested in ICT development (63,64%), whereas the majority of respondents from Serbia (30,85%), Croatia (45,45%) and from Kosovo (under UNSCR 1244) (75%) are interested in Social Sciences. Allocation of interest in S&T areas in B&H and the FYR of Macedonia is quite similar and almost equally divided. In Montenegro, the interest is divided into two equal parts (50%) for Medicine and Ecology/Environment/Earth Sciences.

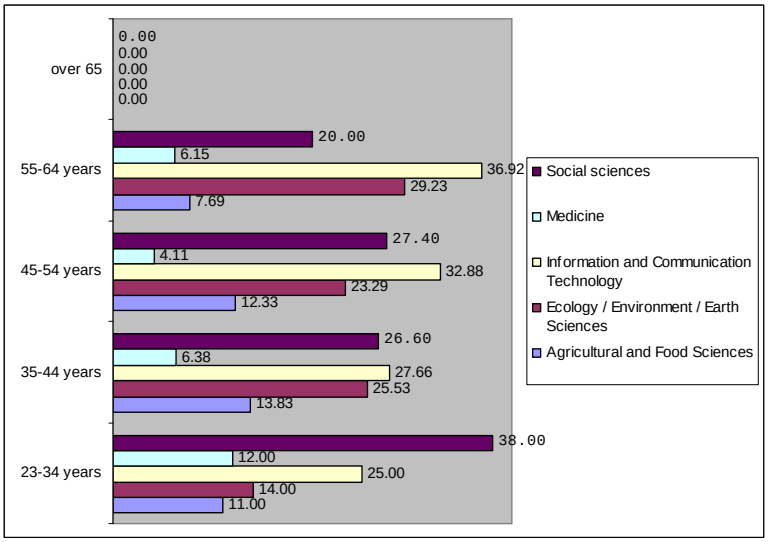


Figure 33: Bar chart presenting interest in particular science and technology areas by age

Figure 33 reveals that majority of the youngest age group are interested in social sciences (38%), and on the contrary, a majority of respondent from the oldest group is most interested in ICT (36,92%).

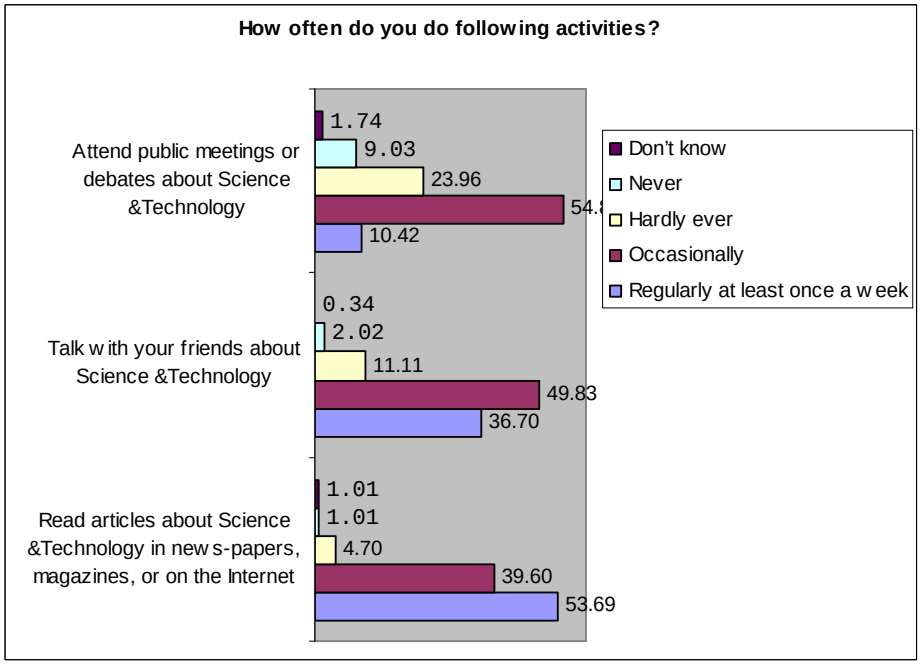
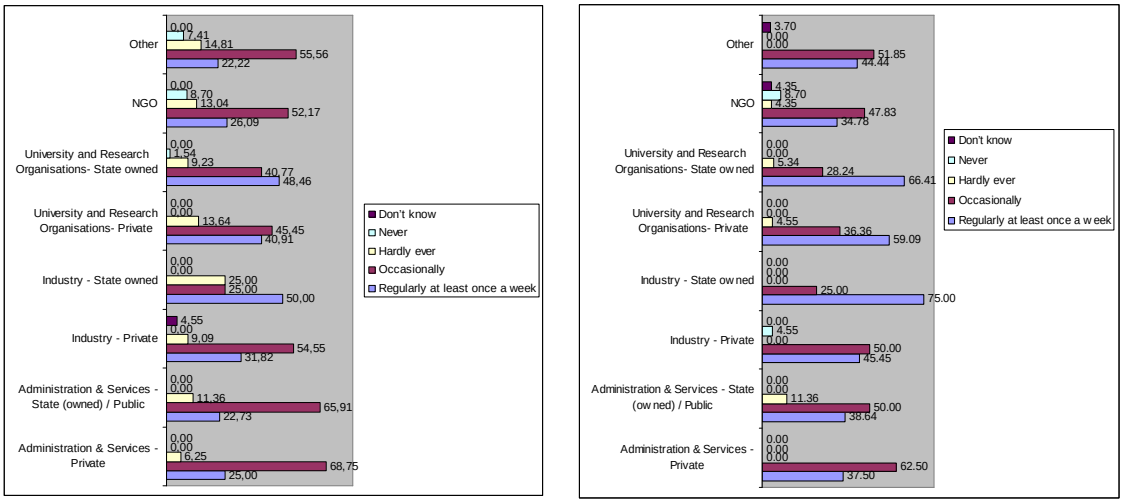


Figure 34: Chart depicting the frequency of performing activities related to S&T

Figure 34 reveals that the majority of respondents (53,69%) regularly, at least once a week, read articles about S&T, and occasionally attend public meetings or debates about S&T (54%).

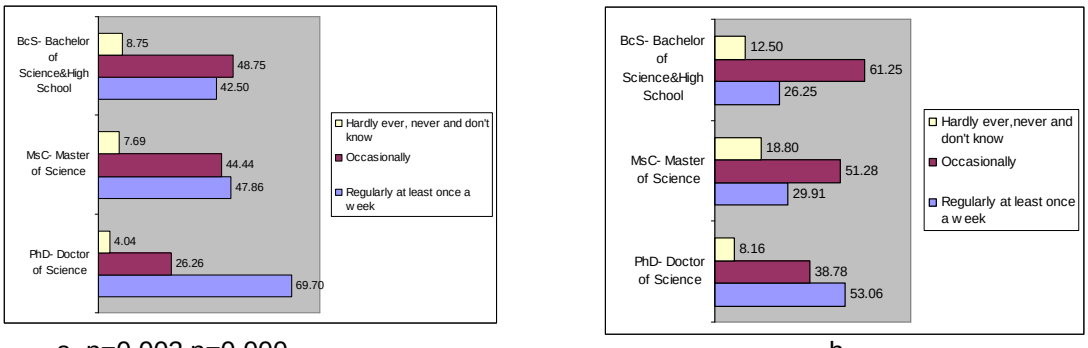
Analysis of question 5. by socio-economic and socio-demographic characteristics



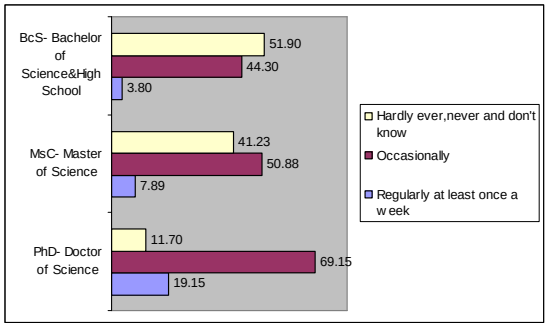
a. b.

Figure 35: Charts depicting the frequency of performing activities related to S&T (a. talk with friends and b. read articles) by type of organization to which respondents belong

Figure 35 examines the correlation between the frequency of activities connected with S&T (talk with friends and read articles) by type of organization to which respondents belong. It appears that employees in state owned R&D organizations and industry perform most regularly activities connected with S&T, although, employees in administration and services both public and private, mostly perform them only occasionally.



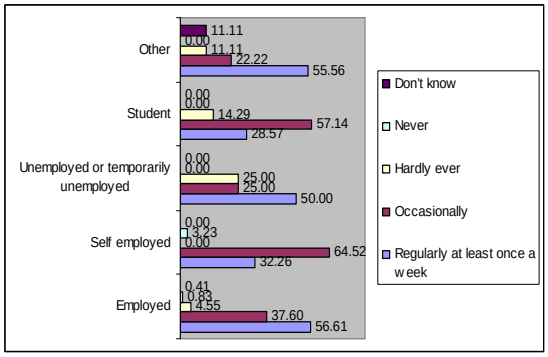
a. p=0.003 p=0.000 b.



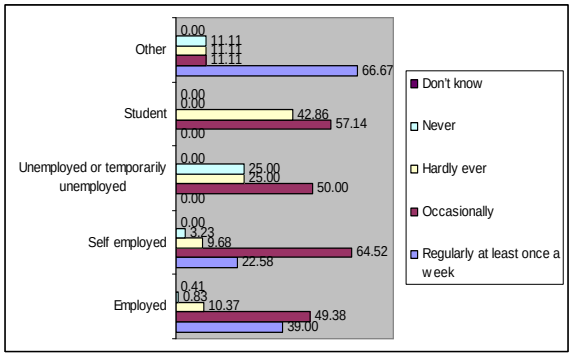
c. p=0.000

Figure 36: Charts depicting the frequency of performing activities related to S&T by level of education (a. talk with friends, b. read articles and c. attend public meetings).

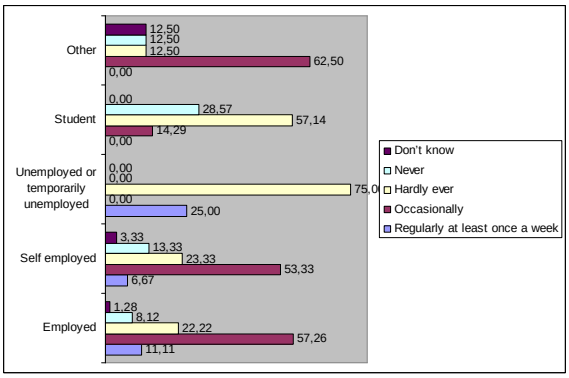
It is obvious when looking at the Figure 36 charts and the chi-square tests, those respondents with highest educational degree perform activities connected with S&T most regularly.



a.



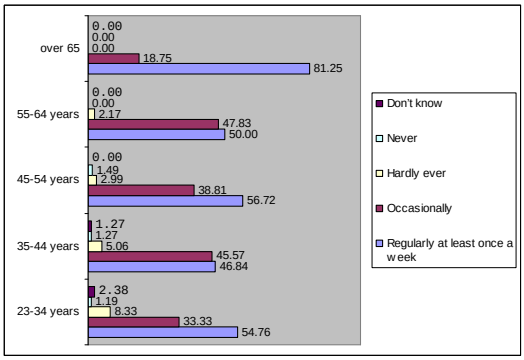
b.



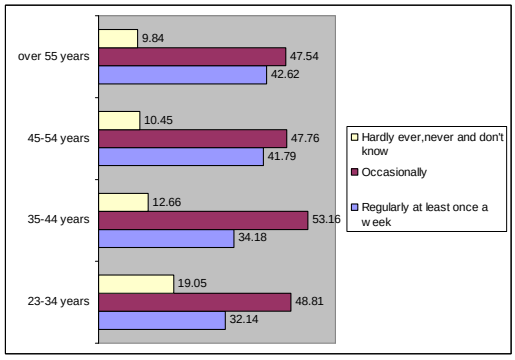
c.

Figure 37: Charts depicting the frequency of performing activities related to S&T by current occupation (a. talk with friends, b. read articles and c. attend public meetings).

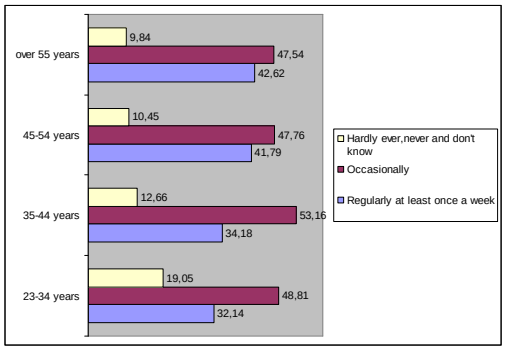
Figure 37 examines in three charts the correlation between activities connected with S&T. Chi-square tests didn't show statistical significances. The analysis reveals that unemployed people and students are less active in performing each of the three activities.



a.



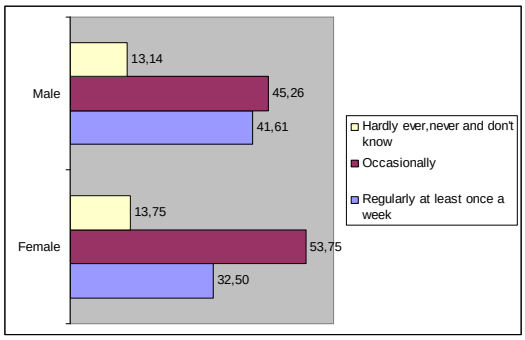
b.



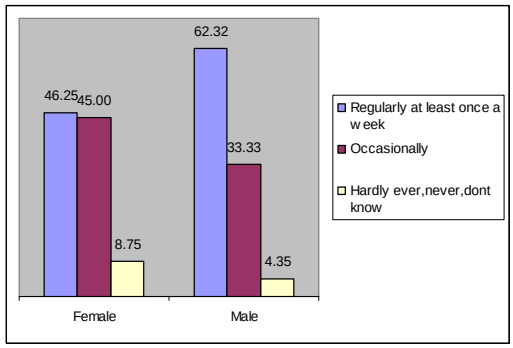
c. P = 0,011

Figure 38: Charts depicting the frequency of performing activities related to S&T by age (a. talk with friends, b. read articles and c. attend public meetings)

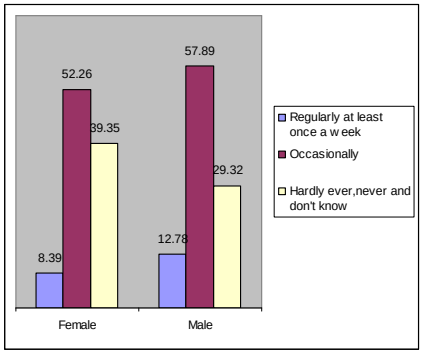
From figure 38 charts depicting the correlation between activities connected with S&T, only the chi-square tests for correlation with attend public meetings about S&T shows statistical significance. Respondents from age groups 35-44 years and over 55 are the most frequent meetings participants.



a.



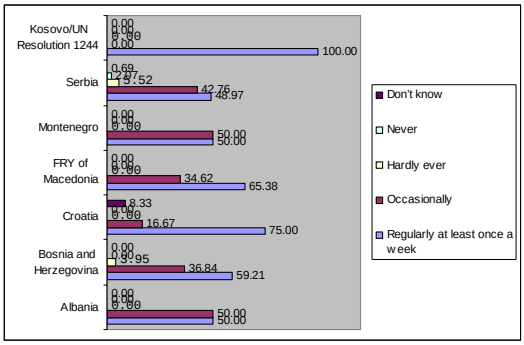
b. p = 0,016



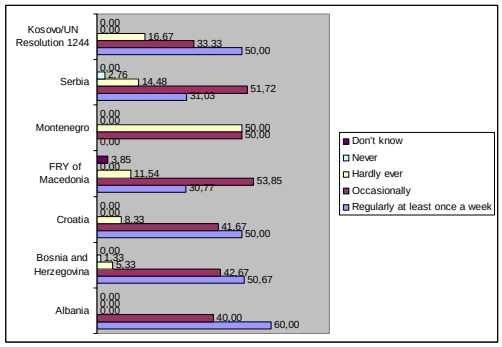
c.

Figure 39: Chart depicting the frequency of performing activities related to S&T by gender (a. talk with friends, b. read articles and c. attend public meetings)

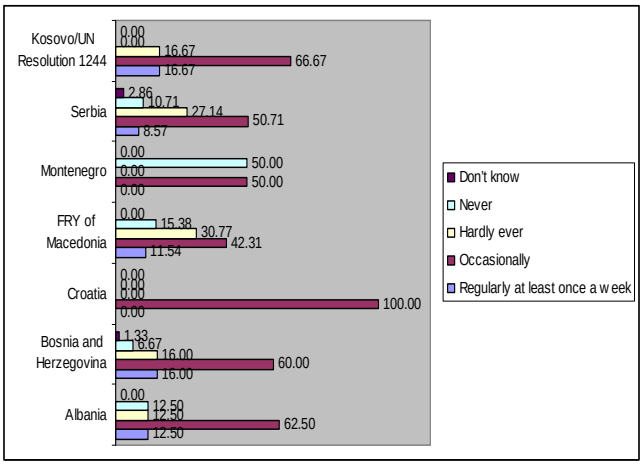
Figure 39 reveals that gender is a significant correlation factor only as far as the activity “read S&T articles” is concerned (p = 0,016); a higher percentage of men are regular readers.



a.



b.



c.

Figure 40: Charts depicting the frequency of performing activities related to S&T (a. talk with friends, b. read articles and c. attend public meetings) by residence country

In the Figure 40 charts it appears that (having in mind sample size see Figure 1) respondents from Bosnia and Herzegovina are the most frequent participants of meetings and debates on S&T (c.) and articles readers (b.), but respondents from the FYR of Macedonia are more than others talking with friends about S&T developments (a.).

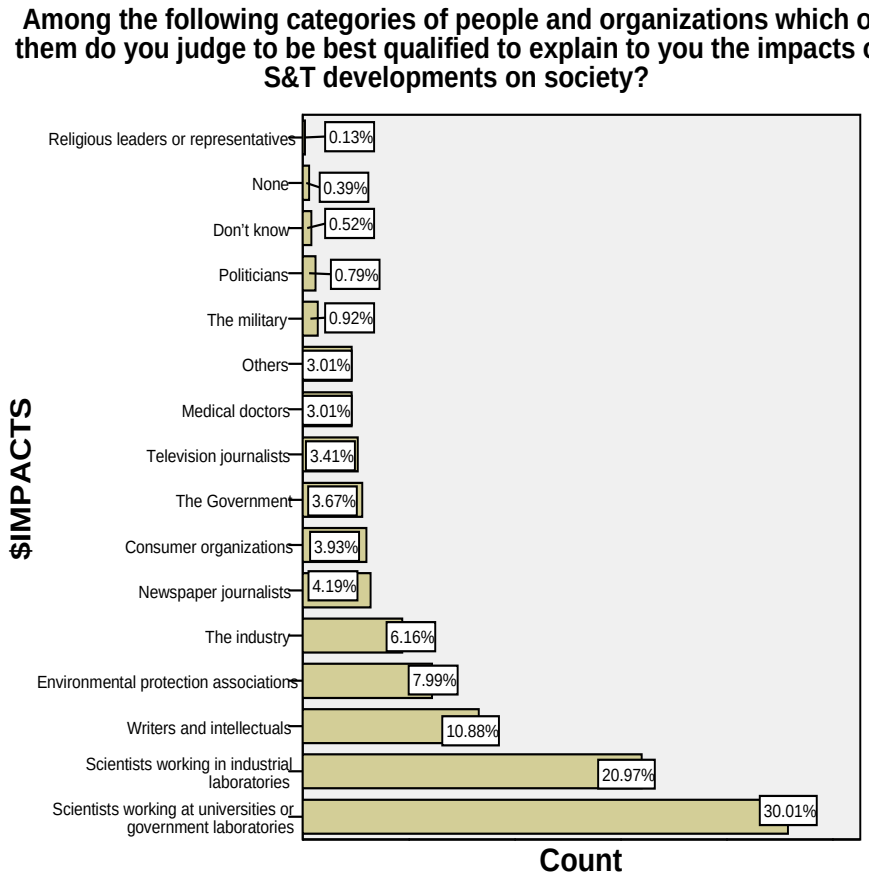


Figure 41: Bar chart presenting trust in particular categories of organizations and/or people capable to explain to someone impacts of S&T

Figure 41 depicts that scientists are people of the greatest trust concerning explanations of S&T impacts on society, and it becomes apparent that politicians and religious leaders are the least trusted. We have used two different categories to distinguish between the politicians in power (Government) from politicians who are professionally involved in politics.

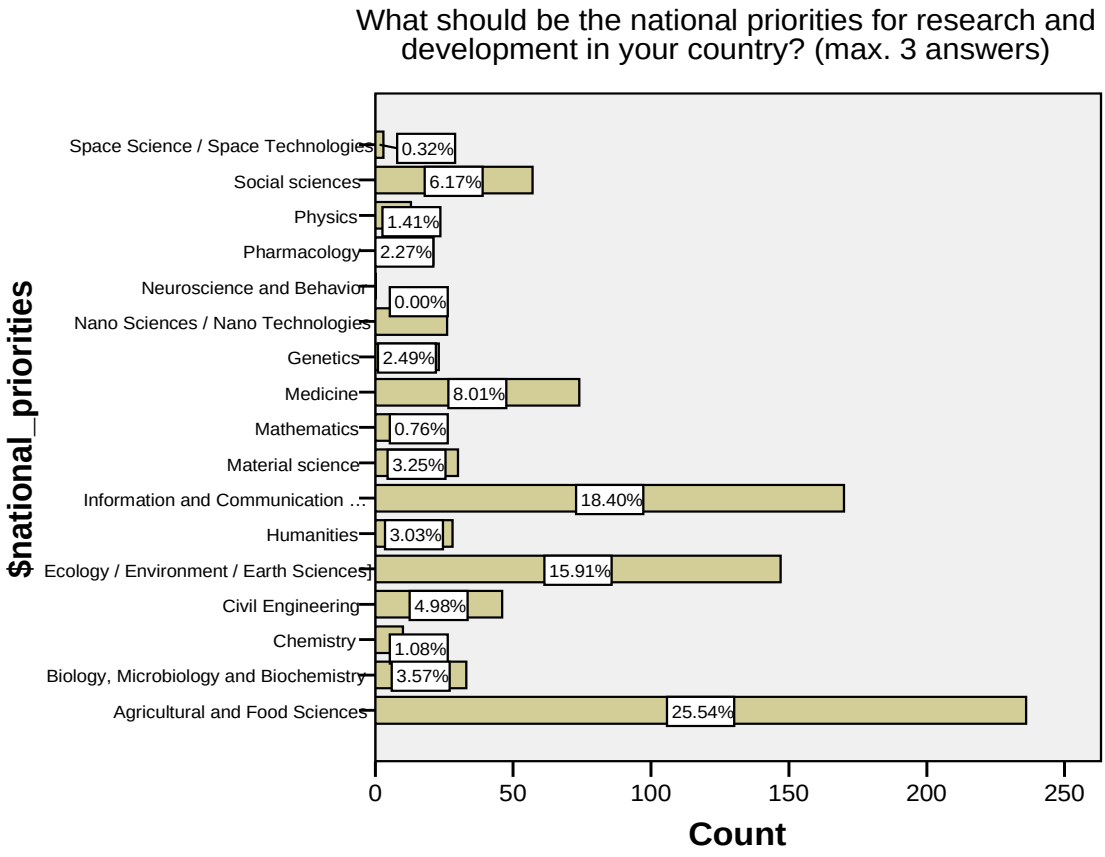


Figure 42: Bar chart presenting respondents' choice of national priorities for R&D in their countries

From figure 42 it becomes apparent that the majority of respondents (more than one quarter) choose Agriculture and Food sciences as national priority for research and development in their country, then comes Information and Communication Technologies, and on the third place Ecology/Environment/Earth sciences. Chemistry, Physics and Genetics are, for example, very low ranking.

Analysis of question 7. By socio-economic and socio-demographic characteristics

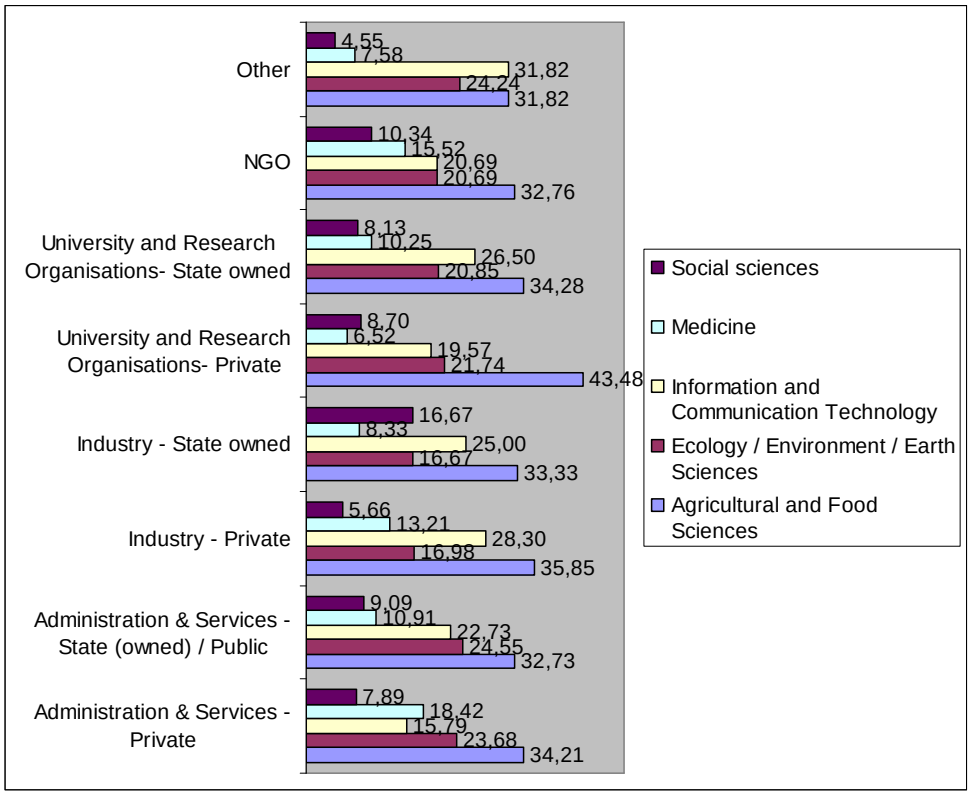


Figure 43: Bar chart presenting respondents' choice of national priorities for R&D in their countries by type of organization to which respondents belong

Figure 43 examines the correlation between respondent's S&T national prioritization and type of organization working in. It appears that respondents from all groups see Agricultural and Food Sciences as a national priority number one. The whole industry sample (25,00% public and 28,30% private) chose ICT as a second priority, as well as universities and state owned RO (26,50%).

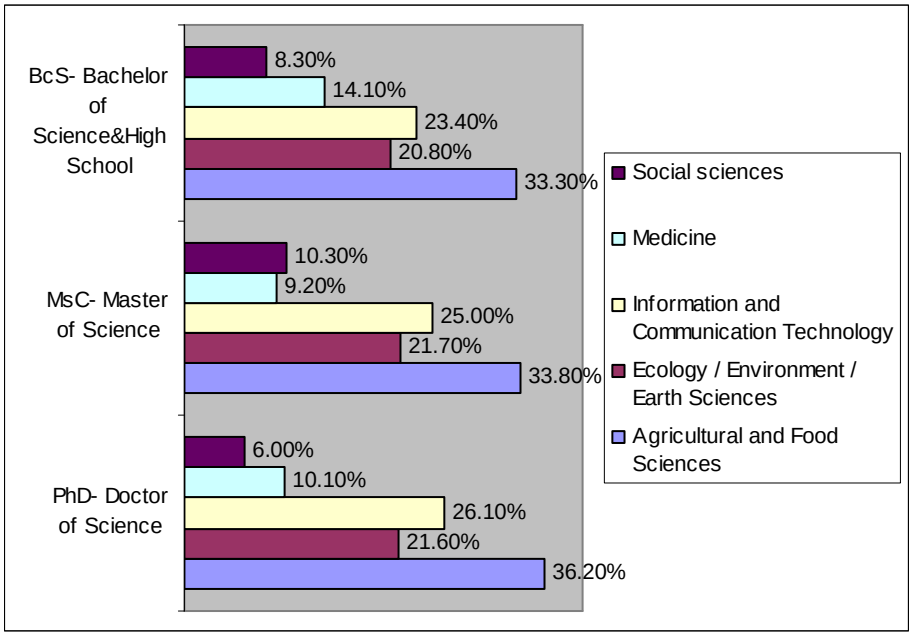


Figure 44: Bar chart presenting respondents' choice of national priorities for R&D in their countries by educational degree

From Figure 44 it appears that the level of education has no significant influence on the choice of national S&T priorities, each respondents group put on the first place Agricultural and Food Sciences and on the second ICT.

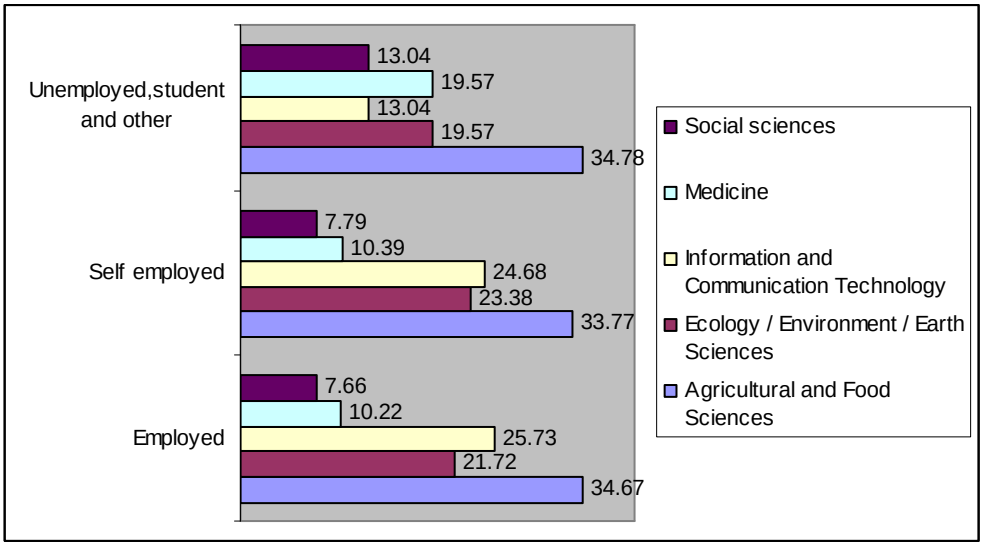


Figure 45: Bar chart presenting respondents' choice of national priorities for R&D in their countries by current occupation of respondents

Figure 45 examines the correlation between interest the in particular science and technology areas and current occupation of respondents. The results of the chi-square test showed that the choice of national priorities in science does not depend statistically significantly on the current occupation of respondents (statistical significance p = 0104).

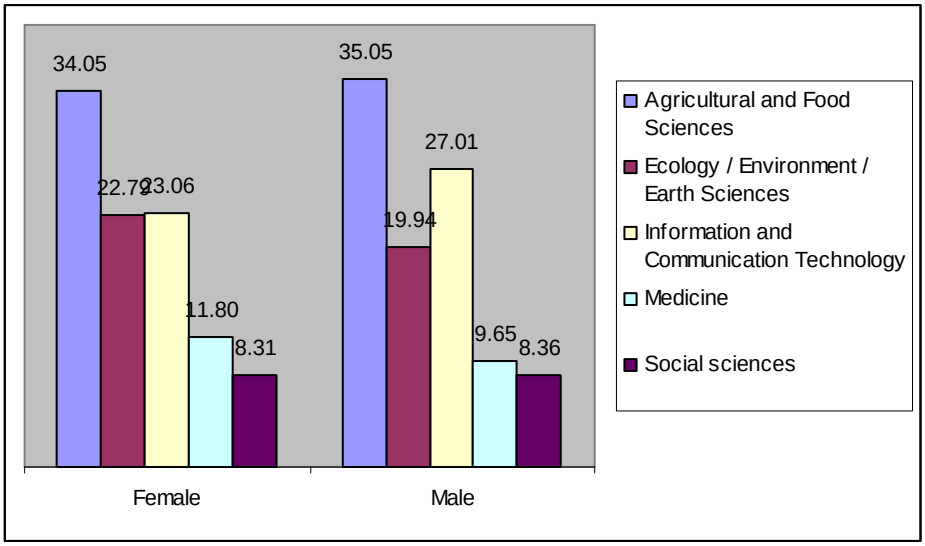


Figure 46: Bar chart presenting respondents' choice of national priorities for R&D in their countries by gender

Based on the application of the chi-square test we can see that gender affects the interest of respondents in terms of ICT (level of statistical significance p = 0.09) and Social Sciences (level of statistical significance p = 0027). Based on SPSS results showing the statistical significance concerning the interest in specific fields of science depending on respondent's gender, women are more interested in Social Sciences than men, while men are more interested than women in ICT. The influence of gender on interest in other fields of science listed on chi-square test results was not statistically significant (Agricultural and Food: statistical significance p = 0092, Ecology/Environment/Earth Sciences: statistical significance of p = 0379, Medicine: statistical significance of p = 0228).

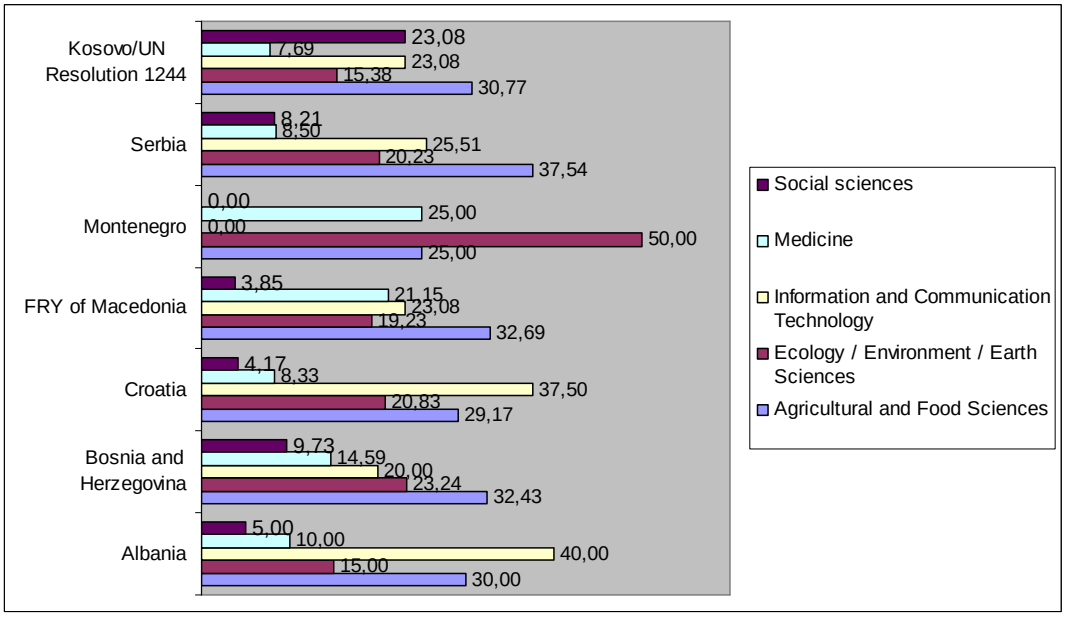


Figure 47: Bar chart presenting respondents' choice of national priorities for R&D in their countries by residence country

Figure 47 depicts the correlation between respondents' choice of national priorities for R&D in their countries and residence country. It reveals that in Serbia, B&H, Kosovo (under UNSCR 1244) and the FYR of Macedonia respondents give priority to Agricultural Sciences., ,while in Albania and Croatia priority has been given to ICT and in Montenegro to Ecology/Environment/Earth Sciences.

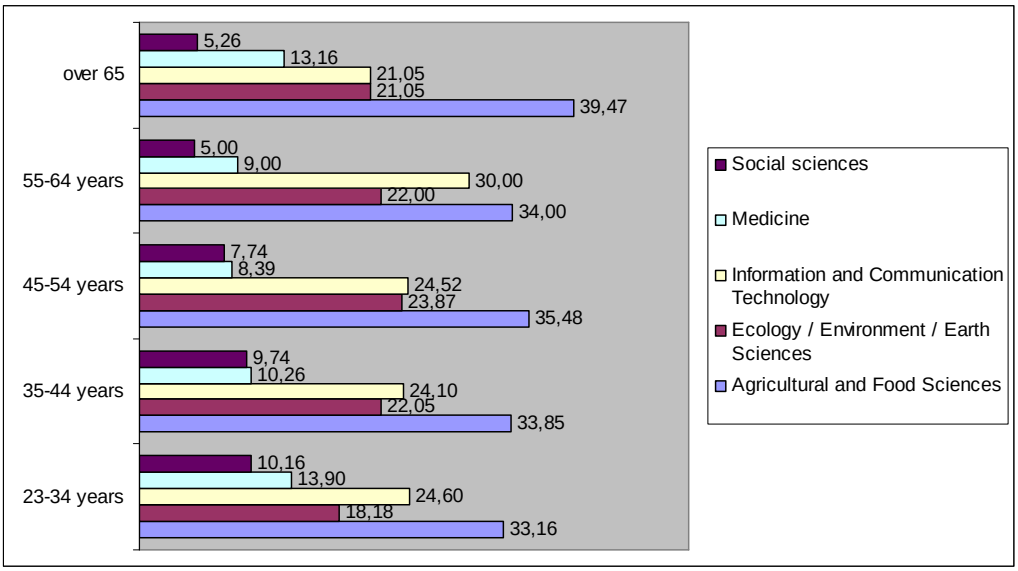


Figure 48: Bar chart presenting respondents' choice of national priorities for R&D in their countries by age

Figure 48 reveals that age has no influence on the national priorities setting in R&D. Each age group see on the first place Agricultural and Food Sciences and on the second ICT.

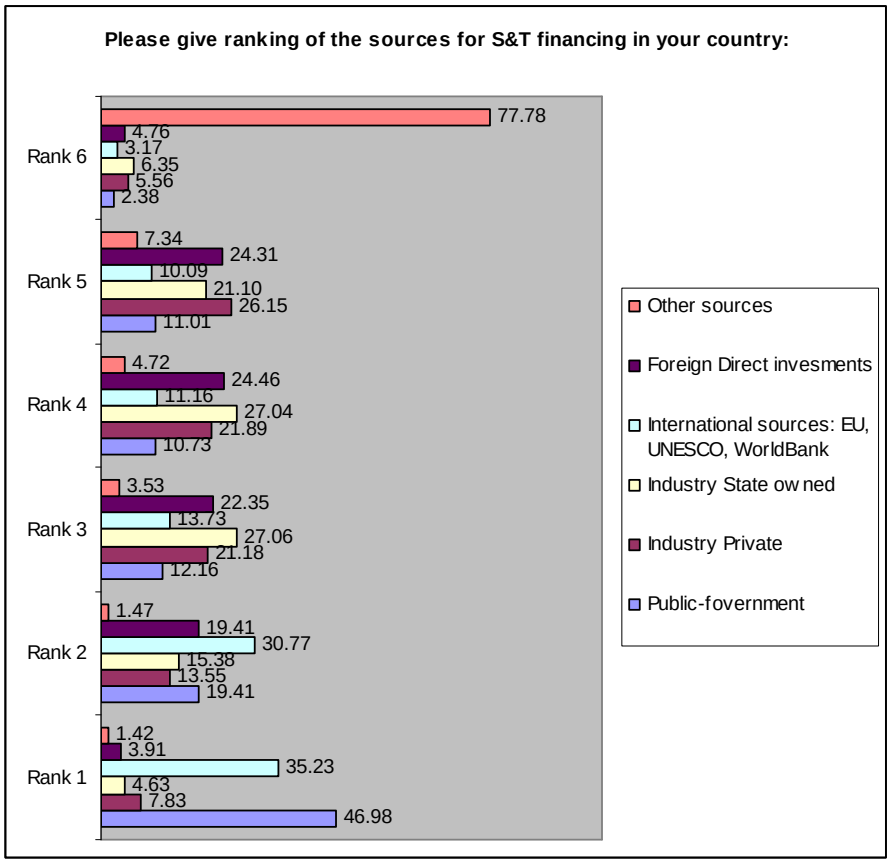


Figure 49: Bar chart depicting opinion of respondents about importance of sources for S&T financing in their countries

The bar charts from Figure 49 show that respondents are aware about sources of S&T financing, half of them giving the rank 1 (mostly important) to the Public/Government funds (46,98%) followed by rank 2 to International Sources (35,23%) , and Private industry (7,83%) and Industry state owned (4,63%) are ranked at 3 and 4 and considered less important.

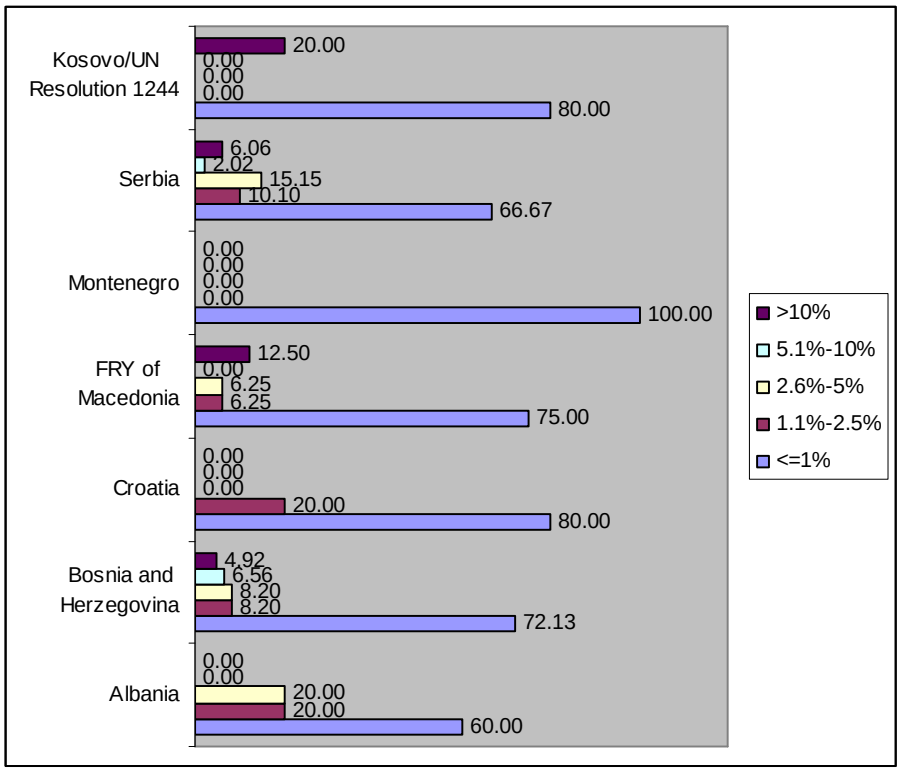


Figure 50: Bar chart depicting estimation from the respondents on the R&D expenditure as a percentage rate of the Gross Domestic Product (GERD – Gross Domestic Expenditure on R&D as a percentage of GDP) in their country

In Figure 50 it becomes apparent that the vast majority of respondents know that GERD in their countries is less than 1% (more than 60% for all countries).

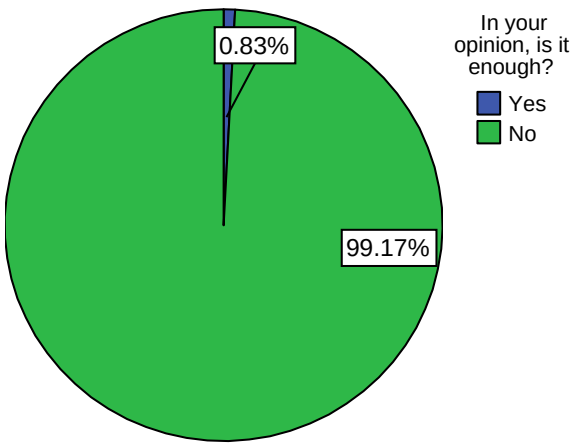


Figure 51: Pie chart depicting opinion about sufficiently of R&D expenditures

As one can see from Figure 51, almost all respondents answered that expenditure for R&D is not sufficient.

Answers on the questions needing descriptive explanation

Question 4: Could you please specify which other science and technology developments you are interested in?

Trying to generalize answers to this question, one can see (Annex 2) that only one third of participants have additional interest besides what we have suggested in the survey. One group of answers is in the frame of science and technology areas that already exist in the questionnaire, but with more detailed sub-fields e.g. in ICT **"**GIS & CAD technologies", or in medicine "neuroscience, neuro-endocrinology". It appears that the greatest interest lies in social sciences, and in economics in particular such as - "Finance, Financial Markets, Insurance", "Economic development, Local and regional development, Urban economics".

The second group of answers shown the wide interest in interdisciplinary research, or one might say holistic interests in science and technology developments. Respondents with this kind of interest have in mind sustainable development as an imperative of whole developments and in that sense their interest are in areas such as: "Within ICT special interest in : Control Systems, Large scale Systems, synergy of ICT and Ecology", "Waste water treatment, Biogas production as an alternative source of energy green construction in civil engineering, geothermal energy and sustainable and renewable energy sources", "CT4D and how it can be used specifically in rural development (including agriculture, but not limited to agriculture)", "biology, space science, IT and applied technologies -accessibility, physics, behavioural science, agriculture and food science" and so on.

We also noticed a group of answers that expressed interest in humanities, which we have not offered as an area of possible interests and/or national priorities in development.

Question 7: Please tell us, in your own words, what it means to study something scientifically?

As an answer to this question we got many diverse and imaginative responses. All of 209 answers are correct in their own way. Some of them more or less, show that a particular respondent is from the specific scientific area e.g. technical or social sciences, but in the same way, all of them touched upon the essence of the meaning "study something scientifically". We can just recommend users of this report to read them since most of the answers were very original and imaginative, and they reflect personal views of the survey participants - they are not just from definitions transcribed from books.

Question 8: Please tell us, in your own words, what is "innovation"?

The largest number of respondents answered this question. As some of them noticed "innovation" is "the world trend", we can divide them in three groups. One group of answers belongs to those who see innovation as something "good", for progress and development of the country or for human benefit, even for the whole civilization.

The second group of answers is connected to the popular, widely spread meaning that innovation is the same as invention or just something "new". The third group of answers is closest to the definition of innovation according to the Oslo Manual (3rd edition): "§148. The minimum requirement for an innovation is that the product, process, marketing method or organizational method must be new (or significantly improved) to the firm.", and: "§150. A common feature of an innovation is that it must have been implemented. A new or improved product is implemented when it is introduced on the market."

5 Part II – Public opinion on set of priorities selected by WBC science & research communities

This part presents an analysis of public opinions towards a set of priorities selected by WBC science and research communities within the WBC-INCO.NET project.

Within the WBC-INCO.NET project, a selected set of priorities were identified in order to structure participation of researchers from Western Balkan countries in research programmes in the European Union. So-called **regional research priorities** for the Western Balkan countries are identified as results of the consultation sessions in the fields of Information and Communication Technologies (ICT), Agro-Food technologies (AF), Health (HEA), Transport (TRA) and Environment (ENV).

The distribution of replies is presented in the following Figures for respondents from each Western Balkan country including Kosovo under UNSCR 1244/1999. Respondents from all other countries included in the survey are classified in the group "*Others;* we consider them as control group for statistical purposes in this part II of the analysis only.

5.1 Priorities in the area of ICT

Priorities in the area of ICT defined within WBC-INCO.NET project are, as follows:

Information and Communication Technologies (ICT):

I. ICTs for Enterprises & eBusiness
II. ICTs for Government & eGovernment
III. Network technologies (Internet & Broadband Technologies, Mobile Technologies, Network technologies)
IV. ICTs for Learning & eLearning
V. ICTs for Health & eHealth
VI. ICT for Environmental sustainability, energy efficiency
VII. Software Engineering

Respondents are asked to answer the following question concerning priorities in the area of ICT:

(Question no. 20.a) What is your opinion abut presented regional research priorities in ICTs for Western Balkan countries (only ONE answers possible):

☐ *Satisfied* ☐ *Fully agree* ☐ *Partly agree*
☐ *Partly disagree* ☐ *Fully disagree* ☐ *Disappointed*

The distribution of replies is presented in Figure 52.

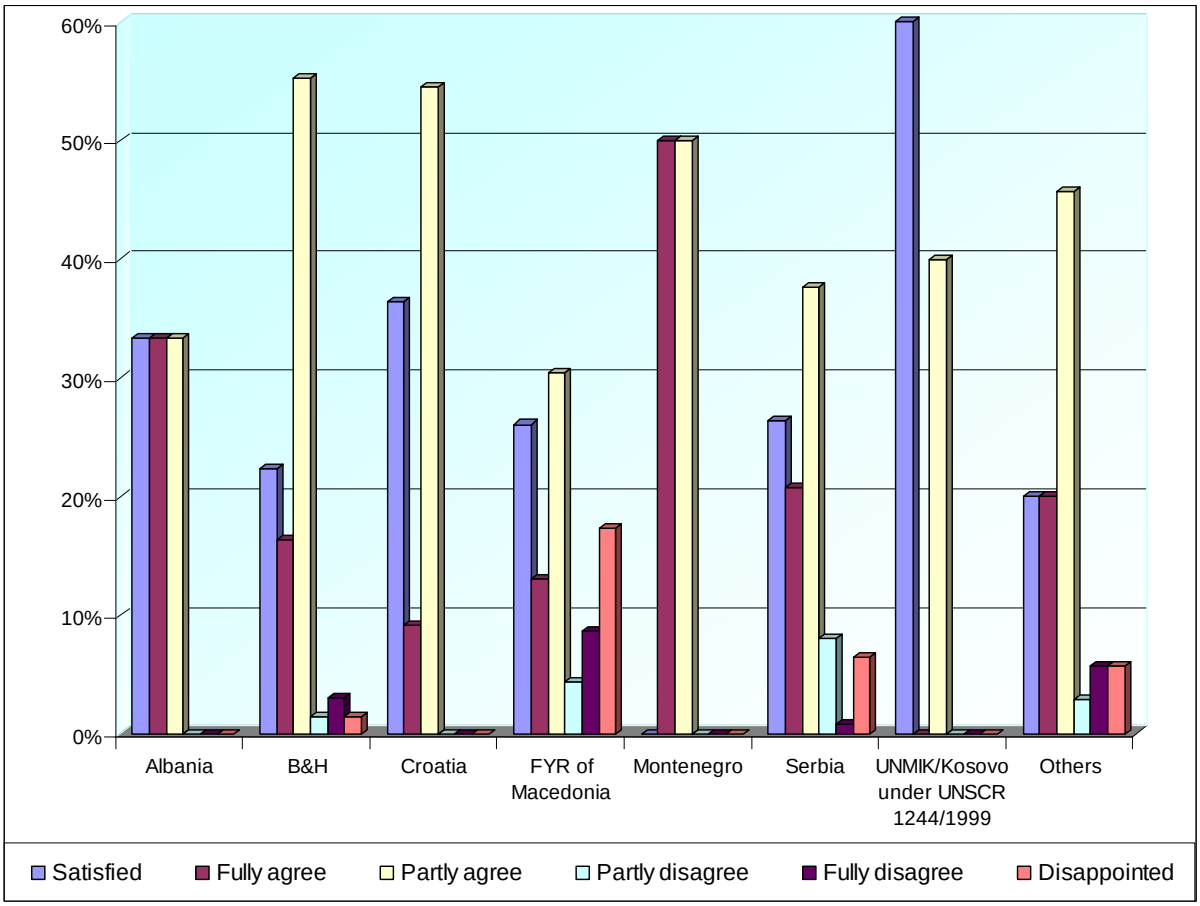


Figure 52: Distribution of replies – public opinion towards set of priorities in the area of Information and Communication Technologies (ICT)

Main findings learned from collected opinions are:

1. The most frequent reply both for respondents from WBC and from other countries is “Partly agree”;
2. The majority of respondents from Albania and Kosovo under UNSCR 1244/1999 are in favour of defined priorities in the area of ICT;
3. Similar to the previous finding but with much more respondents having asked “Partly agree” are replies from BiH and Croatia;
4. Respondents from Montenegro answered “Fully agree” or “Partly agree” (50% respectively) with defined priorities in the area of ICT;
5. Respondents from FYR of Macedonia and Serbia, as well as from other countries outside WBC region are more dispersed.

5.2 Priorities in the area of Agro-Food

Priorities in the area of Agro-Food defined within WBC-INCO.NET project are, as follows:

Agro Food:

I. Food / feed safety and quality, food biotechnology

- *Preservation of indigenous species and traditional food products (in WBC/SEE)*
- *Combined exposure of food and feed to environmental pollutants*

II. Biodiversity

- *Investigation of regional genetic resources in the WBC (plants, animals and microorganisms)*
- *Interdisciplinary field: Land use impact in agriculture on biodiversity (Topic: renewable energy production in the agricultural sector and biodiversity conservation)*

Respondents are asked to answer the following question concerning priorities in the area of AF:

(Question no. 20.b) What is your opinion abut presented regional research priorities in AgroFood for Western Balkan countries (only ONE answers possible):

☐ *Satisfied* ☐ *Fully agree* ☐ *Partly agree*

☐ *Partly disagree* ☐ *Fully disagree* ☐ *Disappointed*

The distribution of replies is presented in Figure 53.

Main findings learned from collected opinions are:

1. Most frequent replies for respondents from WBC are “Satisfied: and “Partly agree”;
2. Majority of respondents from all WBC are in favour of defined priorities in the area of Agro-Food;
3. Respondents from BiH, FYR of Macedonia and Serbia are more dispersed;
4. Respondents from other countries outside WBC region expressed mainly positive, but also negative attitude towards defined priorities in the area of Agro-Food.

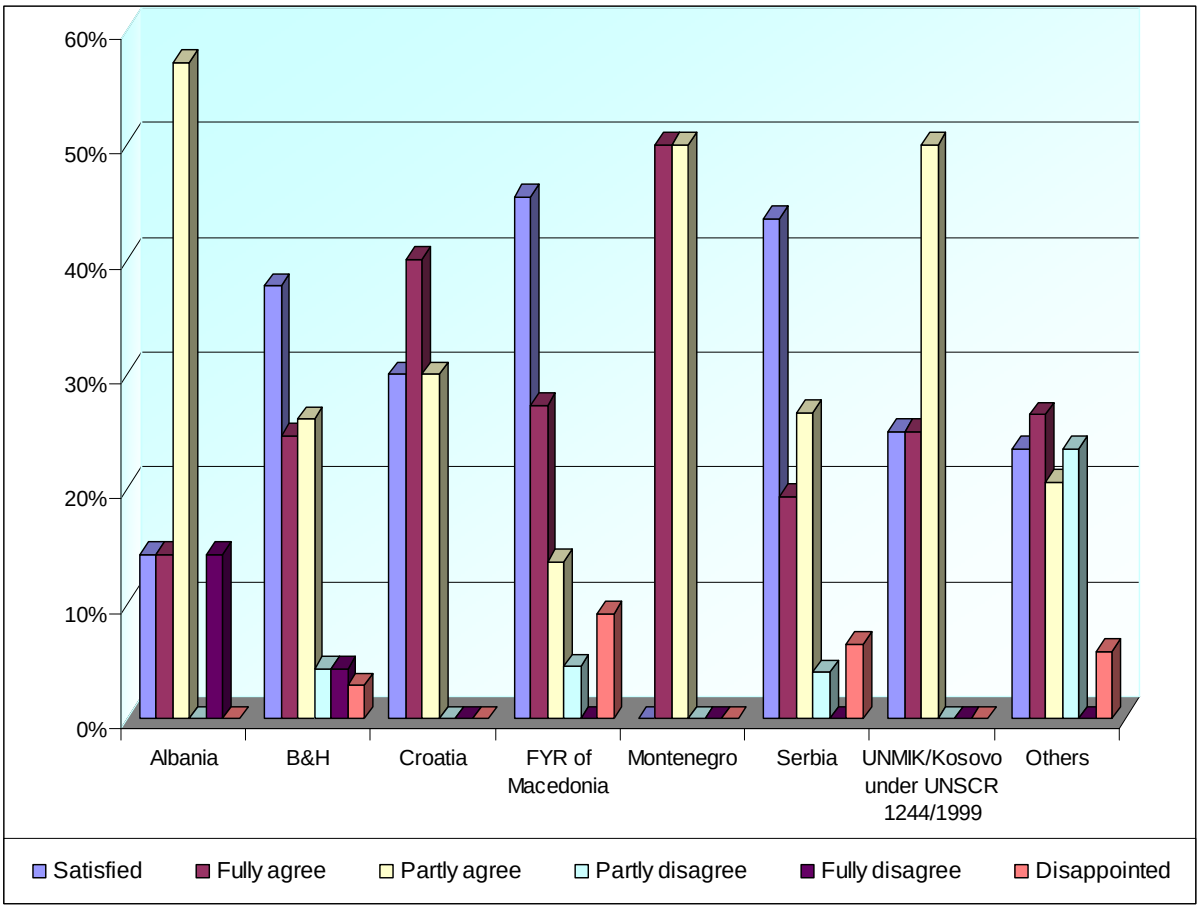


Figure 53: Distribution of replies – public opinion towards set of priorities in the area of Agro-Food (AF)

5.3 Priorities in the area of Environment

Priorities in the area of Environment defined within WBC-INCO.NET project are, as follows:

Environment:

I. Ecosystem based approach to management of renewable resources

II. Environmental Hazards in Cultural Heritage - Development of Knowledge Base for Effective Western Balkan Protection Strategy

III. Biodiversity

IV. Cleaner Production / Environmental technologies

V. Sustainable Management of Terrestrial Natural Resources

VI. Climate change

Respondents are asked to answer the following question concerning priorities in the area of Environment (ENV):

(Question no. 20.c) What is your opinion abut presented regional research priorities in Environment for Western Balkan countries (only ONE answers possible):

☐ *Satisfied* ☐ *Fully agree* ☐ *Partly agree*
☐ *Partly disagree* ☐ *Fully disagree* ☐ *Disappointed*

The distribution of replies is presented in Figure 54.

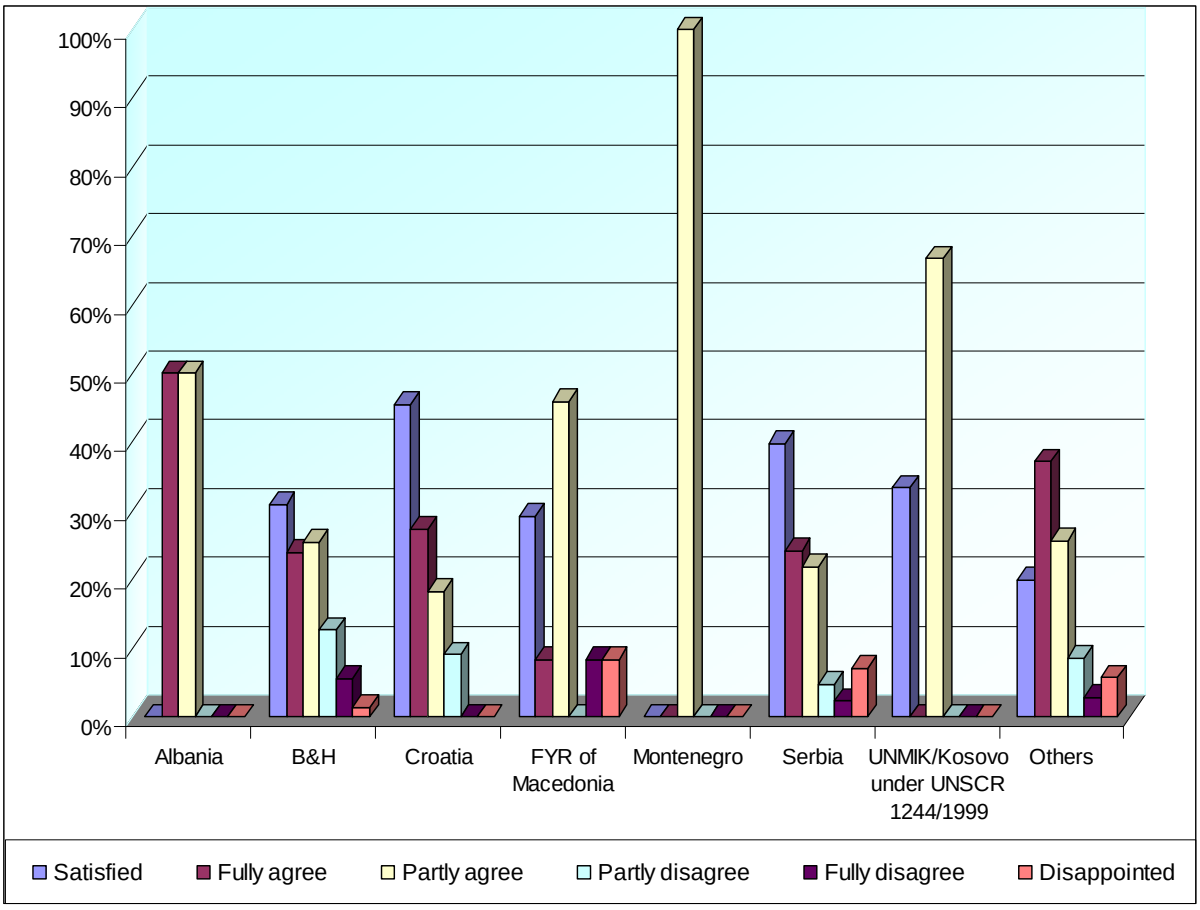


Figure 54: Distribution of replies – public opinion towards set of priorities in the area of Environment (ENV)

Main findings learned from collected opinions are:

1. Most frequent reply for respondents from four countries in the WBC is “Partly agree”;
2. Majority of respondents from (Albania – same percentage for “fully agree”), Montenegro, the FYRof Macedonia and Kosovo under UNSCR 1244/1999 partly agree with the defined priorities in the area of Environment;
3. Respondents from BiH, Croatia, FYR of Macedonia and Serbia, as well as from other countries outside WBC region are more dispersed.

5.4 Priorities in the area of Transport

Priorities in the area of Transport defined within WBC-INCO.NET project are, as follows:

Transport:

I. Impact of surface transport on environment and safety (Coastal seas, Inland waterways, Railways, roads)

II. Advanced materials and structures engineering for safer and greener means of transport

III. Passenger and freight intermodal transport and optimal use of various transport modes

IV. Application of advanced simulations in transport systems

V. Application of ICT in intelligent transport systems

Respondents are asked to answer the following question concerning priorities in the area of Transport (TRA):

(Question no. 20.d) What is your opinion abut presented regional research priorities in Transport for Western Balkan countries (only ONE answers possible):

☐ *Satisfied* ☐ *Fully agree* ☐ *Partly agree*

☐ *Partly disagree* ☐ *Fully disagree* ☐ *Disappointed*

The distribution of replies is presented in Figure 55.

Main findings learned from collected opinions are:

1. Most frequent reply for respondents from WBC is “Partly agree” (4 of the countries);
2. the majority of respondents from Croatia, FYR of Macedonia and Serbia are in favour of defined priorities in the area of Transport;
3. Respondents from BiH, FYR of Macedonia and Serbia, as well as from other countries outside WBC region are more dispersed,;
4. Highest presence of replies “Fully disagree” and “Disappointed” is registered from respondents from FYR of Macedonia.

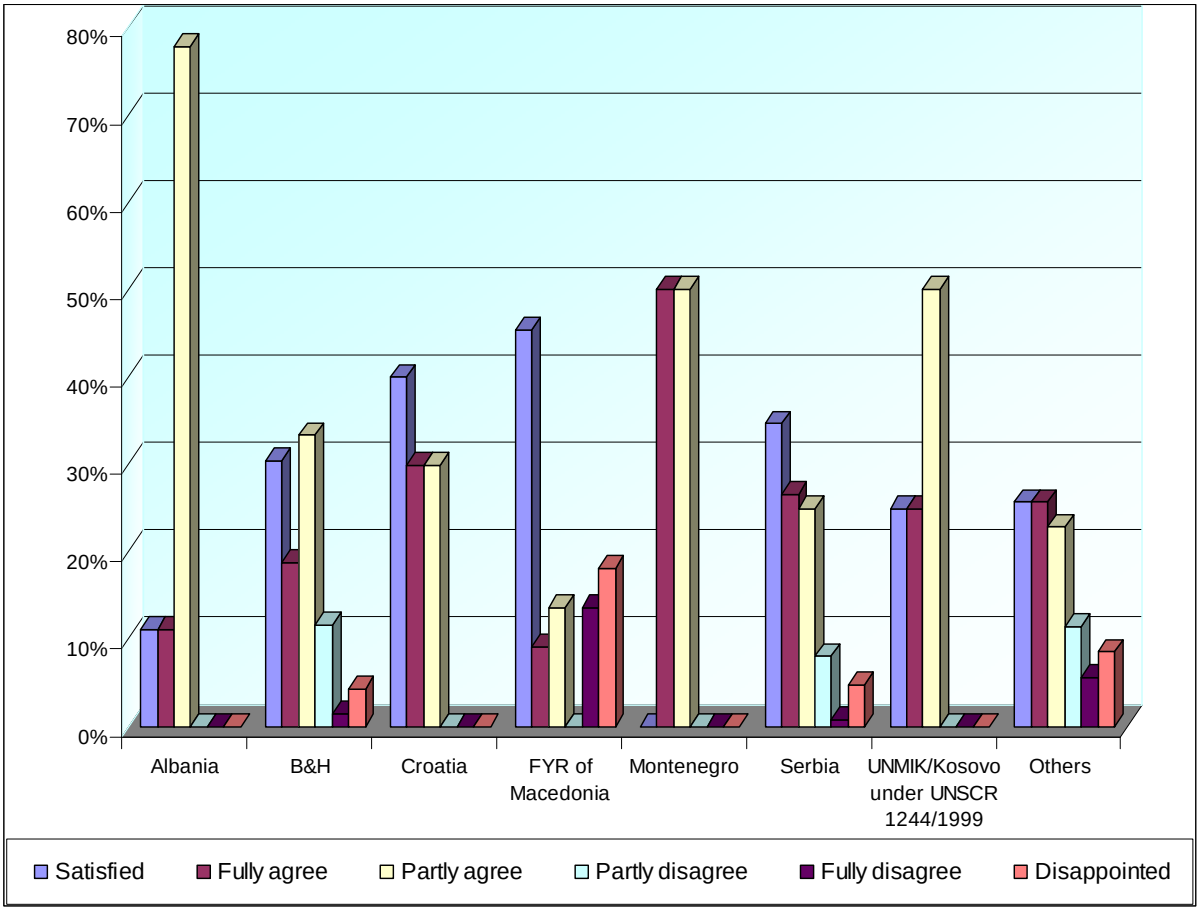


Figure 55: Distribution of replies – public opinion towards set of priorities in the area of Transport (TRA)

5.5 Priorities in the area of Health

Priorities in the area of Health defined within WBC-INCO.NET project are, as follows:

Health:

I. Oncology
II. Cardiovascular diseases
III. Public Health
IV. Mental Health
V. Infectious diseases

Respondents are asked to answer the following question concerning priorities in the area of Health (HEA):

(Question no. 20.e) What is your opinion abut presented regional research priorities in Health for Western Balkan countries (only ONE answers possible):

☐ *Satisfied* ☐ *Fully agree* ☐ *Partly agree*
☐ *Partly disagree* ☐ *Fully disagree* ☐ *Disappointed*

The distribution of replies is presented in Figure 56.

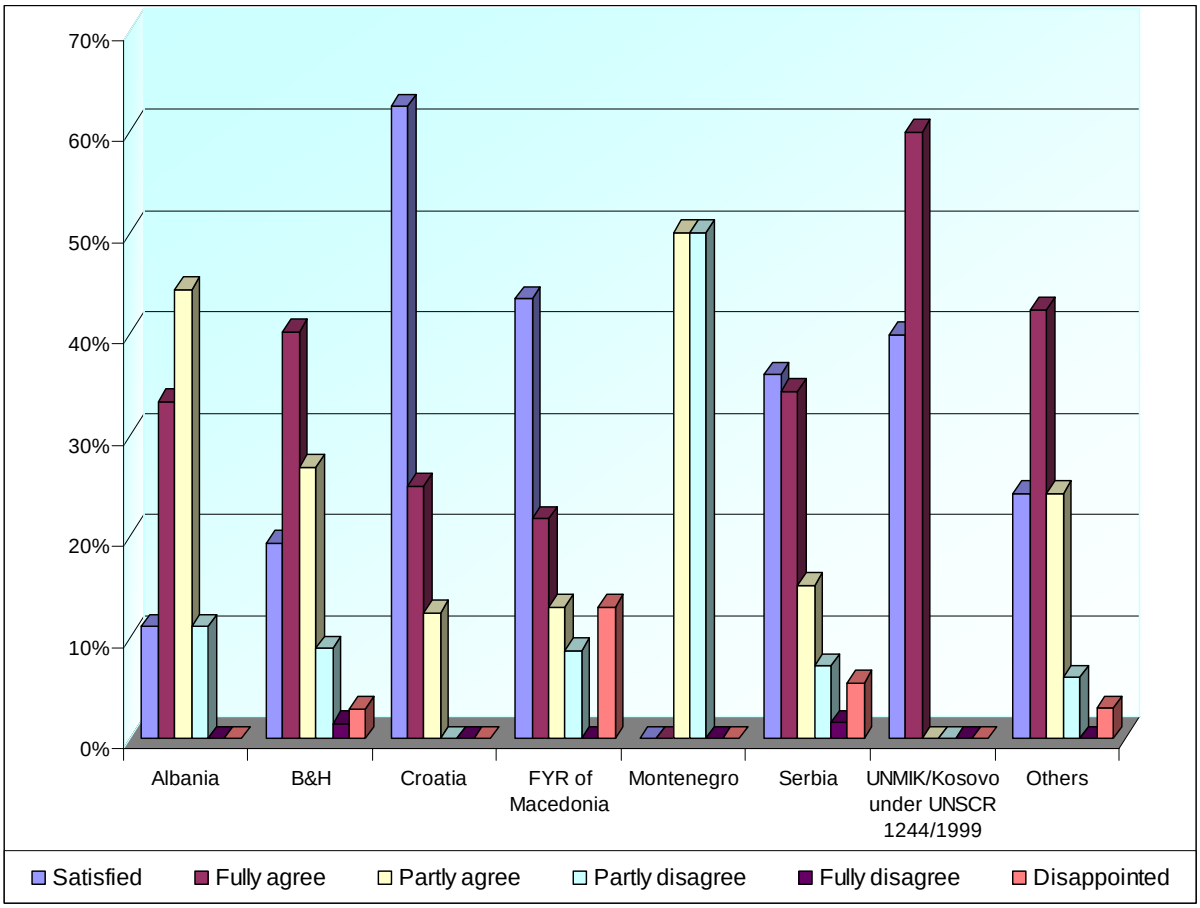


Figure 56: Distribution of replies – public opinion towards set of priorities in the area of Health (HEA)

Main findings learned from collected opinions are:

1. Majority of respondents from three WBC countries replied “Satisfied” (Croatia, FYROM, Serbia);
2. Respondents from all WBC, as well as from other countries outside WBC region are significantly dispersed;
3. Significant presence of the reply “Disappointed” is registered from respondents from FYR of Macedonia, Serbia, and less from “others” and BiH,.

5.6 All priority areas

The previous analyses showed public attitude towards single priority areas defined within the WBC-INCO.NET project. The following analysis is meant to present a comparative overview on all five priority areas: ICT, AF, ENV, TRA, HEA. The replies are grouped into two groups:

- Answers from all WBC are classified under the group: "*WBC*";
- Replies from other countries outside the WBC region are classified under the group: "*Others*".

Distributions of replies are presented in Figures 57 and 58.

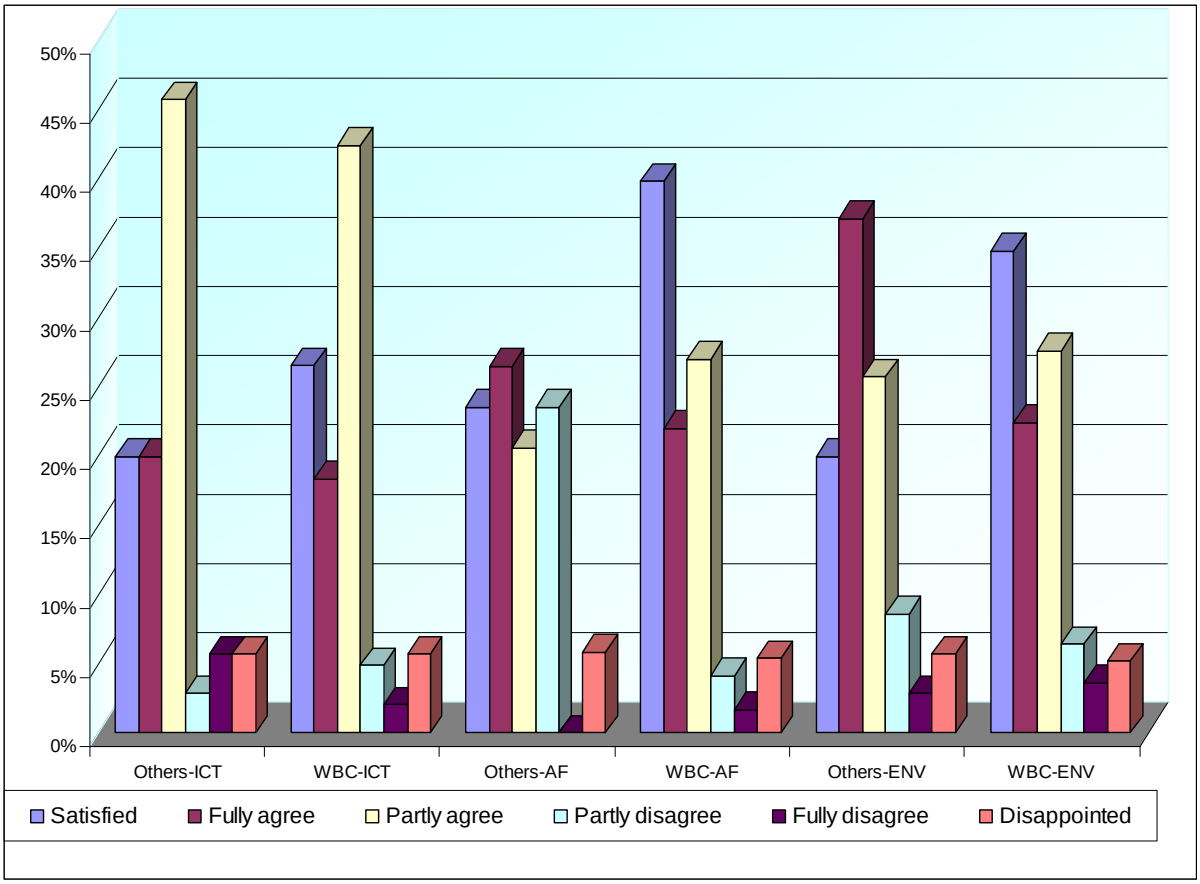


Figure 57: All priority areas: ICT, AF, ENV

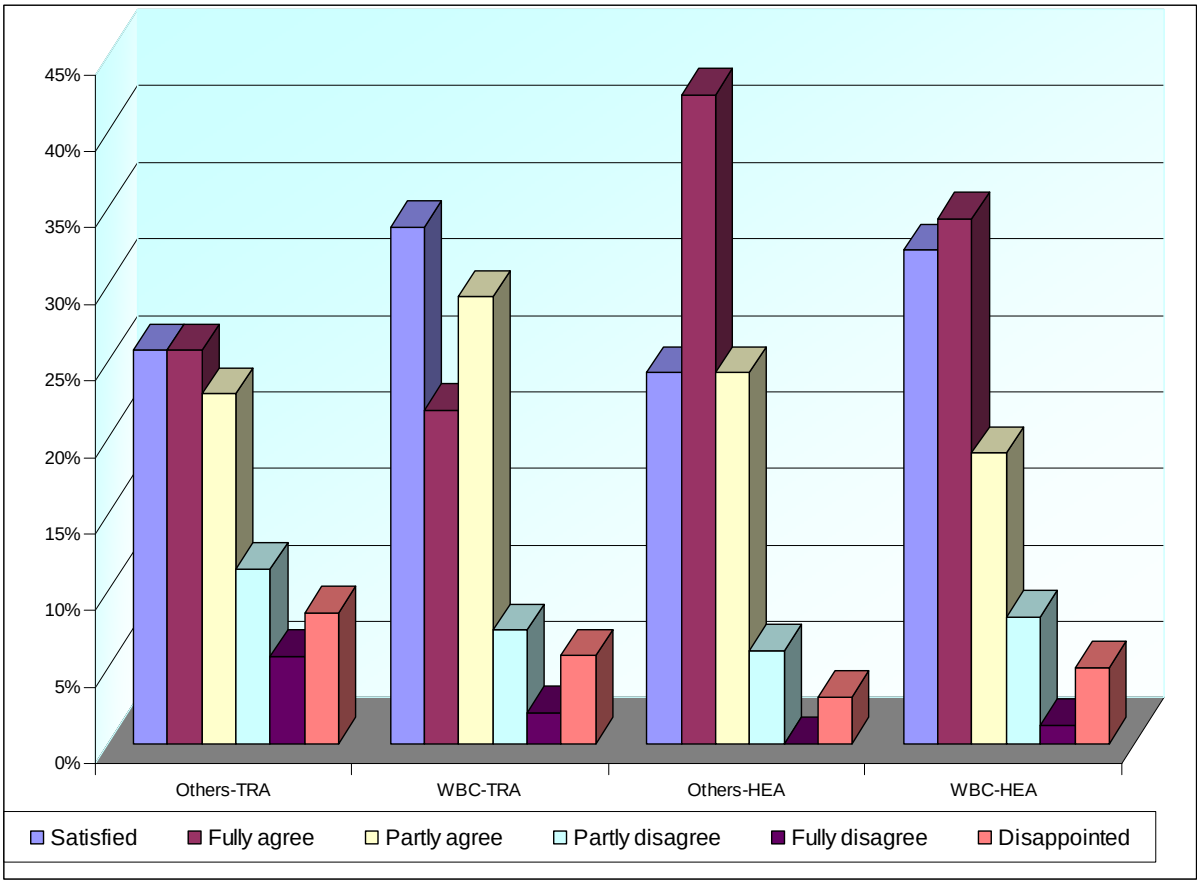


Figure 58: All priority areas: TRA, HEA

Main findings learned from collected opinions are:

1. More than 85% of all respondents both from WBC and other countries are strongly "Satisfied", "Fully agree" or "Partly agree" with defined priorities in all priority areas;
2. Respondents mostly replied "Partly agree" with priorities in the area of ICT; in the area of Agro Food "Satisfied" for WBC and "Fully agree" for others, in the areas of ENV and HEA they answered "Fully agree" and "satisfied" for WBC-ENV , and in the area of TRA are highly dispersed with strongest both "Satisfied" and "Fully agree" for others and "partly agree" for WBC opinions;
3. Around 15% of all respondents both from WBC and other countries "Partly disagree", "Fully disagree" or are "Disappointed" with defined priorities in all priority areas.

6 Discussion

This survey analysis is unique for several reasons. Fist of all a survey regarding broader society opinions on priorities in science, research and development, has not been conducted before. Also, there has not been any inquiry concerning the interest of the same groups of respondents for the development of science, basic and/or applied research.

The main intention and purpose of the survey was, of course, to reflect **the previously identified priorities by the WBC science community (in the frame of WP2 in the WBC.INCO.NET project).**

With that aim, in the first part of survey we asked *two questions which were directly targeted to the main purpose:*

1. *Which science and technology developments are you most interested in?* and
2. *What should be the national priorities for research and development in your country?*

The second part of survey examined the respondents' opinion about the already selected priorities by the WBC science and research communities within the WBC-INCO.NET project.

Concerning **national priorities** - our sample was in line with:

- **Agricultural and food sciences,**
- **Information and communication technologies,**
- **Ecology/environment and**
- **Medicine** as a fourth one.

The results reveal that in Serbia, Bosnia and Herzegovina and the FYR of Macedonia respondents give priority to Agricultural Sciences, ICT and then Ecology, while in Albania and Croatia priority was given to ICT, and then Agricultural Sciences. These responses can be considered more objective than the answers to the first question which give more subjective or personal opinions of the respondents, and concerning this there are differences. Respondents are most interested in the developments of Information and Communication Technologies and in Social Sciences, on the third rank are Ecology/Environment/Earth Sciences. Agricultural and Food Sciences are on the fourth rank, and the least favourable science field is Pharmacology. The majority of respondents from Albania are interested in ICT developments, followed by respondents from Serbia, for which ICT is on the second place, after Social Sciences. Allocation of interest in S&T development in Bosnia and Herzegovina and the FYR of Macedonia is similar and almost equally divided between ICT and Ecology/Environment/Earth Sciences.

The rest of the questions were used for a *socio–demographic and socio–economic analysis of the sample* (a sum of persons who had voluntarily participated in the survey).

The majority of survey respondents are from Serbia – about one half, more than one quarter was from Bosnia and Herzegovina, almost 10 percent from the FYR of Macedonia, and even less from Montenegro. The majority are women (54,13%). The results reveal that one third of respondents are from a younger age group (20-35), and almost the same percentage is from an elder age group, but forty percent of them are between 35 and 50 years old.

The vast majority are employed and live in large towns, ten percent are self-employed, and about thirty percent live in small or middle sized towns. Almost all are well educated with highest educational degrees, working in university and state owned research organisations. More than forty percent, as a matter of fact that is a vast majority of respondents, are working in the public sector; about thirteen per cent are from the private sector.

The participants of the survey are very interested in both basic sciences – fundamental research, and a little more in applied research, new inventions and technologies. When examining the correlation between these two and socio–demographic indicators we received significant differences between different categories in very few cases.

For example, the results of statistical analyses showed that the level of interest in basic science depends on gender, because men are more decisive or, one could say, the discrepancy between “very interested” and “fairly interested” is much greater in men than in women. On the other hand, more men than women are not interested in basic research development. Concerning applied research, there was no statistically significant difference between men and women in terms of their interest, on the contrary to their interest for basic research, but men show more interest in applied research than women. When the question was asked on their interest in particular science and technology areas, gender affects the interest of respondents regarding ICT and Social Sciences. Women from our sample - (with characteristics we described above) are more interested in Social Sciences than men, while men are more interested in ICT than women. The influence of gender on the interest in other fields of science was not statistically significant.

To test the general interest in S&T, we asked respondents how often they attend public meetings about S&T, talk with friends about S&T, or read articles about S&T. It reveals that the majority of respondents are regular readers of articles about S&T, they less often talk with friends, and occasionally attend public meetings. It appears that employees in state owned R&D organizations and industry are most regularly performing activities connected with S&T, although, employees in administration and services both public and private, mostly occasionally perform them. Respondents with the highest educational degree perform activities connected with S&T most regularly, and those who are from age groups 35-44 years and over 55 frequent meetings most regularly. Gender significance occurs only concerning reading S&T articles, men read them more regularly.

Respondents showed awareness about sources of S&T financing giving the rank 1 (as most important) to Public or Government funds, and mark less important industry owned sources. The vast majority know also that GERD in their countries is less than 1%, and almost all respondents answered that these expenditures for R&D are not sufficient.

As conclusions from the results of the survey, we can underline:

- Survey respondents from Western Balkan countries chose as national priorities the same fields of science (research themes) as in WP2 of the WBC.INCO.NET project;

Their personal attitude about the identified more specific priorities is slightly different; respondents are most interested in Information and Communication Technologies, then Social Sciences, on the third place are the areas Ecology/Environment/Earth Sciences, and on the fourth Humanities. This set of priorities depict probably, their professional occupation, or personal perception concerning sciences, though, when they have to choose what is the best way for national science and technology developments, there are agreements with priorities chosen by experts.

Regarding the sample, there was a relatively weak response of members of the civil society and the business sector, as well as those with a lower educational level. By our opinion this was due to poor knowledge of the English language and of the ICT tools used, since the survey was web based.

Nevertheless, the questionnaire was aiming at the parts of civil society and business sectors that could be potentially interested in S&T per se or in S&T results. So the aim of the survey was to reach people that although not necessarily working as researchers or scientists, they have a basic knowledge / interest in these issues and get their opinion regarding S&T priorities. Thus, the survey succeeds into mapping the interests and opinions of that particular “segment” of people.

Overall, the survey is a first one of this kind, and its results satisfied the expectations towards this project activity.

7 Annex 1: Questionnaire

wbc-inco.net
Co-ordination of Research Policies with the Western Balkan Countries

WP 2: Priority setting to structure participation in EC Framework Programs

T2.5: Survey to include other views (personal opinions)

Part I – Personal opinion (Q1 – Q 19)

1) Would you say that you are very interested, fairly interested, not very interested or not at all interested in basic sciences – fundamental research:

☐ Very interested ☐ Fairly interested

☐ Not very interested ☐ Not at all interested

If not very interested, could you give a reason for it? (multiple answers possible)

I have no time ☐

I don't understand it ☐

I don't need it ☐

I never thought about it ☐

I do not care about it ☐

2) Would you say that you are very interested, fairly interested, not very interested or not at all interested in applied research, new inventions and technologies?

☐ Very interested ☐ Fairly interested

☐ Not very interested ☐ Not at all interested

If not very interested, could you give a reason for it? (multiple answers possible)

I have no time ☐

I don't understand it ☐

I don't need it ☐

I never thought about it ☐

I do not care about it ☐

3) Which science and technology developments are you most interested in? (max. 2 answers)

Agricultural and Food Sciences ☐

Biology, Microbiology and Biochemistry ☐

Chemistry ☐

Civil Engineering	☐
Ecology / Environment / Earth Sciences	☐
Humanities	☐
Information and Communication Technology	☐
Material science	☐
Mathematics	☐
Medicine	☐
Genetics	☐
Nano Sciences / Nano Technologies	☐
Neuroscience and Behavior	☐
Pharmacology	☐
Physics	☐
Social sciences	☐
Space Science / Space Technologies	☐
Other – please specify: _____	☐
Other – please specify: _____	☐

4) Could you please specify which other science and technology developments you are interested in?

_____

5) How often do you do the following 3 activities?

	How often do you …	**Regularly at least once a week**	**Occasionally**	**Hardly ever**	**Never**	**Don't know**
1	Read articles about Science &Technology in news-papers, magazines, or on the Internet	☐	☐	☐	☐	☐
2	Talk with your friends about Science &Technology	☐	☐	☐	☐	☐
3	Attend public meetings or debates about Science &Technology	☐	☐	☐	☐	☐

6) Among the following categories of people and organizations which of them do you judge to be best qualified to explain to you the impacts of S&T developments on society? (max. 3 answers)

Scientists working at universities or government laboratories	☐
Scientists working in industrial laboratories	☐
Newspaper journalists	☐
Television journalists	☐
Politicians	☐
Consumer organizations	☐
Environmental protection associations	☐

The industry	☐
The military	☐
Religious leaders or representatives	☐
The Government	☐
Medical doctors	☐
Writers and intellectuals	☐
None	☐
Others –please specify: _____	☐
Others –please specify: _____	☐
Others –please specify: _____	☐
Don't know	☐

7) Please tell us, in your own words, what it means to study something scientifically?

_____

_____

_____

_____

8) Please tell us, in your own words, what is "innovation"?

_____

_____

_____

_____

9) Please give a ranking of the sources for S&T financing in your country: (Rank 1 – most important; … Rank 6 – least important)

Public – government ___

Industry:

Private ___

State owned ___

International sources: EU, UNESCO, WorldBank ___

Foreign Direct Investments ___

Other sources: _____ ___

10) Please estimate the R&D expenditure as a percentage rate of the Gross Domestic Product (GDP) in your country?

_____ %

11) In your opinion, is it enough?

Yes ☐ No ☐

12) What should be the national priorities for research and development in your country?
(max. 3 answers)

- Agricultural and Food Sciences ☐
- Biology, Microbiology and Biochemistry ☐
- Chemistry ☐
- Civil Engineering ☐
- Ecology / Environment / Earth Sciences ☐
- Humanities ☐
- Information and Communication Technology ☐
- Material science ☐
- Mathematics ☐
- Medicine ☐
- Genetics ☐
- Nano Sciences / Nano Technologies ☐
- Neuroscience and Behavior ☐
- Pharmacology ☐
- Physics ☐
- Social sciences ☐
- Space Science / Space Technologies ☐
- Other – please specify: _____ ☐
- Other – please specify: _____ ☐

13) Type of organization you are working at:

Administration & Services
- Private ☐
- State (owned) / Public ☐

Industry
- Private ☐
- State owned ☐

University and Research Organisations
- Private ☐
- State owned / Public ☐

NGO ☐

Other: _____ ☐

14) What is your highest educational degree?

PhD – Doctor of Sciences ☐

MsC – Master of Sciences ☐
BcS – Bachelor of Sciences ☐
High school ☐
Primary school ☐

15) Your current occupation is:

Employed ☐
Self employed ☐
Unemployed or temporarily unemployed ☐
Student ☐
Other ☐

16) How old are you? _____

17) Your gender:

Female ☐ Male ☐

18) In political matters people talk of "the left" and "the right". How would you place your views on this scale?

_____

19) Would you say you live in a...?

Small or middle sized town ☐
Large town ☐
Rural area or village ☐

Part II - Your comment on set of priorities selected by WBC science & research communities (Q20)

Before answering question 20, please read the following explanation and the list of priorities:

Within WBC-INCO.NET project selected set of priorities are defined in order to structure participation of researchers from Western Balkan countries in research programmes in European Union. So-called regional research priorities for the Western Balkan countries, as results of the consultation sessions in the fields of ICT, AgroFood, Health, Transport and Environment are, **as follows:**

Information and Communication Techonologies (ICT):

1. ICTs for Enterprises & eBusiness
2. ICTs for Government & eGovernment
3. Network technologies (Internet & Broadband Technologies, Mobile Technologies, Network technologies)
4. ICTs for Learning & eLearning
5. ICTs for Health & eHealth
6. ICT for Environmental sustainability, energy efficiency
7. Software Engineering

20.a What is your opinion abut presented regional research priorities in *ICTs* for Western Balkan countries (only ONE answers possible):

☐ Satisfied ☐ Fully agree ☐ Partly agree
☐ Partly disagree ☐ Fully disagree ☐ Disappointed

AgroFood:

1. Food / feed safety and quality, food biotechnology
   - Preservation of indigenous species and traditional food products (in WBC/SEE)
   - Combined exposure of food and feed to environmental pollutants
2. Biodiversity
   - Investigation of regional genetic resources in the WBC (plants, animals and microorganisms)
   - Interdisciplinary field: Land use impact in agriculture on biodiversity (Topic: renewable energy production in the agricultural sector and biodiversity conservation)

20.b What is your opinion abut presented regional research priorities in *AgroFood* for Western Balkan countries (only ONE answers possible):

☐ Satisfied ☐ Fully agree ☐ Partly agree
☐ Partly disagree ☐ Fully disagree ☐ Disappointed

Environment:

1. Ecosystem based approach to management of renewable resources

2. Environmental Hazards in Cultural Heritage - Development of Knowledge Base for Effective Western Balkan Protection Strategy
3. Biodiversity
4. Cleaner Production / Environmental technologies
5. Sustainable Management of Terrestrial Natural Resources
6. Climate change

20.c What is your opinion abut presented regional research priorities in *Environment* for Western Balkan countries (only ONE answers possible):

☐ Satisfied ☐ Fully agree ☐ Partly agree
☐ Partly disagree ☐ Fully disagree ☐ Disappointed

Transport:

1. Impact of surface transport on environment and safety (Coastal seas, Inland waterways, Railways, roads)
2. Advanced materials and structures engineering for safer and greener means of transport
3. Passenger and freight intermodal transport and optimal use of various transport modes
4. Application of advanced simulations in transport systems
5. Application of ICT in intelligent transport systems

20.d What is your opinion abut presented regional research priorities in *Transport* for Western Balkan countries (only ONE answers possible):

☐ Satisfied ☐ Fully agree ☐ Partly agree
☐ Partly disagree ☐ Fully disagree ☐ Disappointed

Health:

1. Oncology
2. Cardiovascular diseases
3. Public Health
4. Mental Health
5. Infectious diseases

20.e What is your opinion abut presented regional research priorities in *Health* for Western Balkan countries (only ONE answers possible):

☐ Satisfied ☐ Fully agree ☐ Partly agree
☐ Partly disagree ☐ Fully disagree ☐ Disappointed

8 Annex 2: Answers on the questions needing descriptive explanation

4) Could you please specify which other science and technology developments you are interested in?

1. Within ICT special interest in : Control Systems, Large scale Systems, synergy of ICT and Ecology
2. Wind power
3. Waste water treatment, Biogas production as an alternative source of energy
4. waste resources
5. VLSI circuits
6. Tourism development, hospitality services
7. Theory oscillation, Theory of elasticity
8. The entire process of production and processing of medicinal plants, environmentally friendly production.
9. Technology development of Metallurgy
10. technology of plastic deformation materials
11. Sustainable energy development
12. sustainable development
13. statistics (Econometric analysis)
14. Social sciences - International development and International relations
15. Social sciences
16. social science
17. Social and economic, because fundamental research and new technologies will not alone make the life of people more easier.
18. Smart materials, adaptive structures, active sound and vibration control
19. Smart Grids
20. semantic web, knowledge technologies, artificial intelligence, information systems
21. Selected mostly covers my interests.
22. scientific education
23. Science, research and development in in technology
24. Satellite positioning, geodynamics, geophysics
25. satellite technologies and positioning, geophysics and geodynamics
26. renewable sources of energy
27. renewable energy
28. Radioactivity
29. radiation safety and security
30. Quality management
31. Quality management system according to iso...human resources..
32. psychology
33. psychology
34. Psychology
35. philosophy
36. Pedagogy, Didactic
37. Organizational behaviour, Management psychology
38. Nutrition
39. neuroscience, neuro endocrinology
40. Neuroscience and Behaviour, Physics, Space Science, Humanities
41. Neuroscience and Behaviour

42. Neuroscience and Behaviour Biology, Microbiology and Biochemistry
43. Natural resources and Food Sciences
44. Pharmacology
45. Nanotechnology
46. Medical Physics
47. Nano Sciences / Nano Technologies
48. My main interest is supply chain management in the food sector, because I see this field as the main area to ensure efficiency and effectiveness to ensure safe and enough food for consumers.
49. Monetary Finance
50. Medicine
51. Medicine
52. Mechanical Engineering
53. mathematics, chemistry
54. management, knowledge management, management in education.
55. Management, Economy
56. management and business education/management development
57. Management
58. machinery Engineering
59. linguistics, anthropology
60. Law
61. innovation policy, SME development
62. Information and Communication Technology and Humanities
63. immunology
64. ICT technologies
65. ICT
66. ICT
67. I am also interested in ICT technology developments
68. I am also interested in genetics, social science and nano technologies
69. Hydraulic
70. Humanities, Physics, Philosophy, Religion
71. green construction in civil engineering, geothermal energy and sustainable and renewable energy sources
72. GIS & CAD technologies
73. Genetics
74. genetics
75. Generation, transmission and distribution of electric energy.
76. Electric machine
77. Control Theory
78. general biology
79. Foresight research
80. food science
81. food chemistry
82. Finance, financial markets, Insurance
83. Exploration and exploitation of stone, gravel and water
84. Environmental technology
85. Environment & Earth science; Material Science
86. Energy Efficiency Industrial Applications
87. Energy efficiency
88. energy and transport
89. Energy
90. energy

91. embedded systems, Robotics, advance computer architecture, wireless sensors
92. electrotechnics
93. electrical machines and drives; vehicular technology.
94. education, cognitive sciences, medicine
95. economy, law
96. economy
97. economy
98. economics & informatics
99. Economic science
100. Economic development, Local and regional development, Urban economics
101. Ecology in Civil Engineering
102. Ecology and Medicine
103. Developments in biophysics.
104. Developmental Sciences Food, Water, Energy & Environment Health Sciences (holistic approach)Learning, Knowledge & Education Science, Technology & Society
105. development studies and space science
106. development of media literacy context analysis
107. development economics feminist economics
108. CT4D and how it can be used specifically in rural development (including agriculture, but not limited to agriculture)
109. convergence sciences
110. Communication technologies
111. civil engineering physics
112. Civil Engineering, Ecology / Environment / Earth Sciences, Humanities, Information and Communication Technology, Nano Sciences / Nano Technologies, Neuroscience and Behaviour,
113. Buddhism and quantum physics
114. biotechnology in general
115. Biotechnology
116. Biostatistics
117. Biophysics or Physics in Biology and Medicine
118. Biology, Microbiology and Biochemistry,
119. biology, space science, IT and applied technologies -accessibility, physics, behavioural science, agriculture and food science
120. Bioengineering
121. astronomy
122. Applied electronics Power electronics Mechatronics Alternative source of energy
123. All kinds of mechanical engineering.
124. All developments related to innovative improvement of competitiveness of SMEs.
125. Advanced materials processing; ceramics; radioactive waste management
126. Accounting, banking and finances.
127. 3D scanning and digitizing, Reverse engineering, Computer-Aided Engineering
128. Auger Sputter Depth Profiling2. Solar Energy
129. -political sciences-regionalisation process

7) Please tell us, in your own words, what it means to study something scientifically?

1. Work in project which is based on research activities for new product/process / service or significant improvement of the existing
2. With proofs that can be metered.
3. with objective parameters, with possibility to repeat with similar results, with strongly controlled environment (conditional)
4. When a problem is approached by using specific academic skills from certain area
5. what is based on dates
6. Well, it should be a proof-based, experimentally confirmed, develop-oriented, constantly re-examined and human race-morally acceptable series of activities.
7. using scientific methodology
8. Using scientific knowledge, books and references as a base for further research
9. Using scientific approach to study the subject, improve it; find a solution for given problem
10. Using experiment, observation, deduction and other scientific research methodologies to produce reliable explanations of phenomena
11. using and understanding the scientific process and new technologies
12. use the scientific methods in research of some problem, in depth view/analyses of subject/object of scientific research, pushing the limits of knowledge about matters in question, always questioning and challenging commonly accepted
13. use scientific methods -quantitative / qualitative,
14. upgrading someone's existing knowledge using modern teaching methodology with maximum inclusion of students
15. try to gather all necessary data and reach more than one conclusion and fruitful implications
16. try to compute things, understand it, and use it
17. to work on implementation of the new technologies on problems and analysing results, and trying to found out new ways to solve the problems
18. to watch the phenomena, to study and monitor, to learn all available material written about it, think on the issues identified, discuss with relevant communities and individuals, and to create/suggest new models/solutions/options or
19. To use up-to now science knowledge, to study issue using science methodology and regulations and to check results also in accordance with proper methodology.
20. To use scientific methods
21. To use scientific methodology in studding. Which would also include consulting it from various points of view and questioning the validity of all information.
22. to use scientific analysis, equipment,
23. to use real facts and analyse it on a scientific bases
24. to understand the reasons why something is happening, and how that interact with other problems. to be capable to predict future movements in topic You investigate
25. to understand new scientific research and to tried to realize their application in our condition.
26. to understand basics principles, to compare theory and practise, to analyze data, to make predictions.
27. To understand a problem at the level that other scientists understand it.
28. To take a close look into the issue and use scientific method to describe the
29. phenomenon, taking steps to avoid personal or any other bias. My issue is that scientific societies are very much closed in their own silo mentality.
30. To study the fundamental science and follow the new developments.
31. to study something thoroughly with a vision of objective that you would like to achieve

32. To study something systematically using previous scientific lows and tools, to be produced new knowledge.
33. To study something scientifically represents awareness of the world around you.
34. Opportunity to contribute to the technological progress of country's. It is a continuing effort to discover and increase human knowledge and understanding
35. To study something scientifically means to search for qualitative and quantitative explanation of how A leads to B, and what are the influences on that road
36. To study based upon the scientific data
37. To study an issue without bias and in such a way that, repeated by the original or any other researcher, it will lead to the same/similar results.
38. to search for a facts in order to have arguments
39. To review relevant literature, apply relevant models, develop own approaches and models and apply them
40. To recognize and define some problem in scientific area, and then, using a different methods try to solve them.
41. To read, to understand and to be able to do the implementation or to continue the research in this field if you have necessary infrastructure
42. to obtain a detailed understanding about some phenomena, and about the every factor which could affect that phenomenon and change it
43. To observe something carefully, to make measurements, to perform calculations based on theoretical knowledge and to compare the empirical results with the theoretical ones in order to show why that something is happening or acting
44. to notice, observe, analyze and understand and explain the basic principles of an event or an appearance, present proofs or sustainable theory and approach any problem with an open mind without telling that something is not possible.
45. to make research in theory
46. to look for new potential of something regarding material or mode of use
47. to learn more deep for something
48. To learn about causes and consequences and to establish patterns that can be supported by scientific evidence
49. To keep up to date with recent discoveries and compile that with the knowledge from the area of interest
50. To investigate relationships systematically and carefully
51. To introduce and apply something in real life
52. To identify indicators that determine the nature of the subject researched
53. To identify exactly the object/subject of the study, to identify methodology, and follow the changes in time, to formulate patterns that explain phenomenon and can be applied to future similar events or on predicting events.
54. To have possibility of verification of gathered results; To use appropriate methods accepted in the field of science where one conducts research; to use scientific apparatus; to test current dominant paradigm;
55. To have methodology, to conclude based on evidence
56. to have an overall knowledge about something using scientific methodology
57. To have a chance to change the world in a better way.
58. to gain very specified knowledge about causes and relationship between certain and important issue, to learn to explore and investigate how it can be used to approve the quality of life of all of us, and always to question things
59. To find write answers
60. To find the relevant -best one resources for the topic which is subject of resource, to identify priorities, sort out the trend and try to predict future trends based on findings
61. to find results that will be translated for the benefit of society
62. To explore with critical mind and look for the proof and evidence based conclusions

63. to explore something with all scientific tools, available in that moment.
64. To explore all kind of news in related field, and learn all available in this fields.
65. To explain a novelty/produce something useful for the society
66. To do the research, to work on projects and to collaborate with industry
67. To do the research - reading, developing new solutions, implementing, testing
68. to do research in some specific field, do experiments if app. apply new ideas in practise and monitor
69. TO do research and theoretical work (such as reading a lot of articles and books on the subject).
70. To do research in some field of sciences an get new results in that research.
71. To do it for living
72. To do all the necessary researches, build a team of experts, examine the new invention or theory in scientific circles and find a way to apply it to improve the life and the quality of life
73. to devote yourself to continuous study and learning
74. To collect all relevant facts, to analyze them and to draw some conclusion from that
75. to be thorough in their work, to break the current state of art and to explore new field, and to be inventive in all areas of work
76. To be continuously informed about new approaches to specific questions and to test them in the individual research.
77. To attend trainings/courses at certified institution
78. to apply scientific methods in examining the nature and society
79. To apply scientific methods (logically strong, quantifiable and repeatable results) to solve a problem.
80. to apply scientific method
81. to analyze, to improve, to make it more efficient, to predict..
82. To analyze something empirically, to rely on previous research methods and findings.
83. To analyse something (phenomenon, process, object, concept,...) by using scientific method(s)
84. to analyse in details by the means that the humanity actually dispose one problem
85. This is something that is a the result of research which probes the extent of experience and knowledge
86. That you only rely on scientific grounded facts or the ones that you have some sort of proof; you do not act under any rumours basis
87. That means to study something thoroughly and objectively.
88. That means to study something deeply, further.
89. That means exciting walk into the unknown
90. Testing hypothesis empirically, on experimental or questionnaire - correlation way
91. test scientific hypothesis to gain new knowledge
92. technically sound and reasonable, based on very few assumptions (axioms)
93. technique for investigating new phenomena’s and acquiring new knowledge or correcting and integrating the previous
94. Study with rigorous academic approach
95. Study with depth of perception, with serious attitude, with wide range of literature and opinions review; well structured, consistent, clear argumentation work
96. Study something based on previous scientific research and discoveries to improve your own knowledge
97. Study scientifically means study theory and less practical stuff. It is also the basis for applicable research.
98. Strictly and creatively to follow scientific methodology to explain the studied phenomena or processes
99. Sticati znanja koja su naucno zasnovana i prihvacena

100. start with no prejudice to experiment with some thing
101. specified the hypothesis, to test it and to conclude
102. something what is possible to approve and confirm
103. Seriously, without improvisations, as much as possible objectively
104. Scientifically studying means observation of the phenomenon, identification its origin & influence & specification its possible development
105. Scientific research is the study with respect to scientific methods, achieved the respect of recognized knowledge, monitoring, innovation, knowledge of statistics, knowledge of high-quality sources of reliable information in any fie
106. Scientific research is systematic research that has its own methodology, methods, scientific facts and scientific results.
107. Scientific methods use the observation of the phenomenon and experimentation trying to simulate occurrence under controlled conditions
108. scientific method
109. Science is a systematic endeavour of gathering knowledge about the world and organizing and condensations of knowledge in the laws and theories that can be verified
110. Rigorous, rationalitet
111. Researching
112. Research systematically, analyse, synthesise,
113. Reading literature, learning, trying to do, make your own project, in order to implement knowledge
114. Reading all important for field of study. Try to find something new
115. reading a lot of papers, lab experiments and conversation with people involved in the same field of interest
116. read, write, discuss
117. read, research, exchanging knowledge and experience
118. Read articles, books, attend scientific meetings, projects, write articles
119. razjasniti neko nepoznato pitanje, kontroverzu, uociti novi ugao neke pojave
120. progress
121. problem identification and reaching the solution
122. Principles and procedures for the systematic pursuit of knowledge involving the recognition and formulation of a problem, the collection of data through observation and experiment, and the formulation and testing of hypotheses.
123. Poznavati aktuelna znanja posmatranom problemu i imati sposobnost uvecati ta znanja
124. Only very few people in Serbia really deals with science. To be engaged in science means to really study given subject, not only when it is necessary to publish some work for close to deadlines.
125. Obtain knowledge and/or skills to understand and resolve different scientific issues/problems/ challenges
126. observe the subject phenomenon, consult existing theories, develop new hypothesis, design research, conduct research and process research data, test and validate research result, contribute to theory building
127. No answer.
128. Neku pojavu izucavamo na naucni nacin ako: -najprije istrazimo teoriju - ono do tada napisano o odredjenoj temi i dotadasnje pristupe-na osnovu dotadasnjih pristupa i vlastitog znanja odaberemo najadekvatniju metodologiju koju
129. Nature impact on life
130. Methodologically, reading available scientific literature (books, journals, conference proceedings), testing and experimenting if possible.
131. Measuring, data monitoring, comparing, analyses, research.

132. means to collect data and gain knowledge using experimentation, leading to formulation and testing of hypotheses
133. Making hypothesis, collecting data, analyzing of data, conclusion and confirmation or disproving of hypothesis and further researching on the basis of available information
134. Make hypothesis, test, and repeat and prove if this is repeatable, it is scientifically correct
135. Make hypothesis and with suitable methods resolving problems
136. look the "problem" from all possible (or known) spots
137. Leaving today thinking about future.
138. learning of science for the future of the existing needs in order to create a small number of errors, something like that
139. It must consists of the collection of data through observation and experimentation, and the formulation and testing of hypotheses
140. It means: 1) to systematically investigate what other people have done in a specific field2) to determine possible new directions for the research in the area3) to conduct investigation in the new directions by using appropriate the
141. It means to use all evidence based methods for study
142. It means to use adequate methodologies in order to set a hypothesis, structure, analysis, synthesis, conclusions, and, what I'm most interested in, some recommendations for change (solution of problems, further development.etc)
143. It means to study using scientific methods and to research and look for new solutions
144. It means to study something thoroughly and extensively while maintaining a neutral approach, in hope to achieve positive results
145. It means to study how to develop new products and processes to satisfy existing demand and to stimulate future demand for national, regional and global Research and Development and to increase productivity and improve quality through
146. it means to study all aspects off concrete issue
147. It means to recognize the problem, to find solution using scientific-research methods (multidisciplinary laboratory-experimental and analytical research, to analyzed and verified obtained results and to set recommendations, suggestion
148. It means to push the boundaries of your capabilities on daily basis.
149. It means to make quality research in particular area, and to use these data to produce something useful for society
150. It means to know in details what are contributions of all others in that area, what is missing in detailed knowledge about it and than to undertake experimental or theoretical studies to understand that particular phenomenon.
151. It means to explore ways of implementing new scientific achievements into the everyday life
152. It means that you use your scientific knowledge and evidences from those areas to come to the finish. As the end of the research should be scientific evidence that will help other researchers in this area.
153. It means that you use theoretical and experimental knowledge to explain certain problem or to investigate certain process.
154. It means that you study some problems from scientifically point of view and find answers according to study results and findings
155. It means that you have to be aware what do you have , what do you want to do and to do lots of researching and to find a way to achieve that goal, and it is not depending on the subject(you can do researching and improve something
156. It means that you already know many theories and you have critical opinion, then you can study something.
157. It means that man giving development industry from his researching
158. It means gaining a new knowledge that is based only on facts and researches.

159. it means collecting empirical fact, information, causes and consequences and based on that forming theories about world that surround us
160. It is to enter into the core of the event, to see the link between the different parameters in it, to find the correlation among them.
161. It is ok I think that is nice.
162. it is new: product, method, mathematical model, control
163. Investigation of phenomena using experimental and numerical methods
164. Introduced yourself with the state of the art of the subject you are studding, develop the idea what can be your contribution, develop contribution, check it on the appropriate way by yourself, check it within competent scientific s
165. Include scientific methods in verifying your statements
166. in accordance with scientific methodology
167. I understand science as something which tries to improve our lives by going closer and closer to the truth.
168. I don't understand the question
169. having possibility for the research and innovation
170. Hard work and total involvement in research till you succeed.
171. hard work
172. Great satisfaction
173. Gain an in-depth insight about the studied phenomenon using scientific method
174. fundamentally
175. Following the established rules to examine and make conclusions
176. Exploring, using different methods, testing, and public publishing
177. everything
178. Every research
179. Etwas zu suchen, etwas was mir keine ruche gibt
180. Doing continuous research, research papers work in laboratories
181. Developing problem solving capabilities based on a scientific method
182. Developing new scientific methods or techniques for investigating different kinds of nature's phenomena, deepening the scientific knowledge, correcting and integrating previous knowledge, which in the end will result in applicable c
183. Develop methodology to characterize an object or a process, study various effects on the object or process
184. Detail approach without prejudice ta any matter of interest.
185. Continuous effort of highly educated individuals to improve human knowledge in a certain field.
186. Consistently and thoroughly, based on evidences, with necessary creative anticipation and with self-control
187. Complete approach to study something, including many aspects
188. Collection of data through observation and experimentation, and the formulation and testing of hypotheses
189. collecting data, observing something, write documents about something observed.
190. basic and applied research introduced in studies!
191. based od verified scientific methods
192. ask questions and try to confirm hypothesis with data from the field or other kind of quantifiable research
193. Applying the latest scientific methodologies on investigation or on resolving the certain problem!
194. applying scientific research and methodology
195. Applying fundamental knowledge and practical technical skills in order to solve problems and to improve the quality of life
196. apply scientific methods and data

197. application of well founded methodology; variety of aspects taken into account; original contribution; profound interpretation of the results
198. Any systematic and creative work with aim to increase knowledge and apply its in practice
199. analysing the results of implementing the new technologies to solve problems
200. analysing science works, researching and writing and public own science works
201. Analysing the matter of studying in all possible aspects, and testing or experimenting with the matter of study. At the, bringing up the results provide clear scientific proofs
202. Always trying to deny something you study as truth
203. adventure
204. Adopt new knowledge from the results of scientific research. Required segment of study should be participation in research.
205. Acquiring new knowledge by collecting data from experiments or speculations, using previous experience and methodology.
206. Acquiring new knowledge about Phenomenon
207. According to my opinion, it means that a team of people conducts numerous researches in scientific environment due to analyze something and find a possibility to apply it in practice or find some benefits for human and nature
208. a lot of time
209. establishing hypotheses gathering observable, empirical and measurable evidence3. confirming or disconfirming hypotheses

8) Please tell us, in your own words, what is “innovation”?

1. Total new or improved product, system, method etc. that positively impacts on efficiency of production, product application, economy, society, farther scientific research, etc.
2. Total new or improved product, system, technology or method that impacts on economy and society in positive way.
3. To work and invent some new product or service.
4. To make or introduce something new in science or in other field
5. To find better (in terms of technology, performance, price/performance ratio) solution to a known problem, or to find a solution to a problem that have not been solved so far.
6. to express new ideas that are not invented and to tried to realize
7. to do things in a new way
8. to develop new product on human benefit
9. To conceive something new, which will be applied in practice.
10. This is positive activity that leads to economic development i the progress civilization. It's personal satisfaction i development as well.
11. the world trends
12. the way to deal with challenges of future needs of the society
13. the process of development of some product, process or technology by using the old one and improving it.
14. The new useful way to do something what improve quality of live
15. The new knowledge, new skills and new application of existing knowledge, which contribute to development of the society.
16. The new and different way of doing something
17. the most important factor in the development of any company, the best way to have competitive advantages on the market, the best way to earn the money
18. The main thing for the progress of the country

19. The invention that has been commercialized
20. the act of starting something for the first time; introducing something new;a new way of doing something
21. The act of starting something for the first time, introducing something new
22. The ability to do something that most people can not do.
23. Technical (or other)improvement by wit
24. system/prototype/technique that enhance existing product/tool/commodity
25. something which is new, which have not ever been before
26. Something what improves one's life.
27. something that was never before on the market
28. something that is new (product, process) or a an old thing being used in a new way
29. something that is applicable in practice and it is new
30. Something that improves existing object or a process.
31. something that does not yet exist, and benefits for the population
32. something newly introduced, introduction of new thing/product method
33. Something newly discovered, a new way of thinking, implementing, producing and so on :)
34. something new. new approach to old problem, new look on old problem, new ways of dealing with old problem.
35. something new, just discovered fact or appearance that will change formed view and give new perspective of that.
36. Something new, more efficient which development function or process or physical shape.
37. something new with an important impact (progress) in the society (industry, environment etc)
38. Something new useful for real life.
39. Something new to the region, industrial brunch or the different use of already existing technology in new way.
40. Something new to organization, either material or managerial, which improve its economical, ecological or societal status
41. something new presented (idea, device, methodology etc) to be useful for some purpose
42. Something new or improved.
43. something new in science and technology
44. something new and useful
45. Something new and useful for our society
46. something new and useful
47. Something new among the existing
48. Something NEW
49. something new
50. something new
51. something new
52. something new-finding something new out of the well known things for development/improvement purposes
53. Something completely new delivered as result of well designed and applied research!
54. something better and simpler
55. something (an approach, data, device,...)never used before in a certain area or using known data in an unexpected, creative way.
56. something new, better, in processes, practices, business...based on new application of science and technology.
57. some new application or patent obtained after some scientific research
58. Revolutionary solution and answer to existing needs.
59. result of someone's creativity
60. Renewal

61. Primjena znanja na novi naÄ□in
62. patented discovery
63. part of procedure
64. original outcome as a results of (mostly) research investigations. it could be new technology, new methodology, new device, new material etc.
65. new, untested, still not used in practice, something that changes peoples lives to better
66. New, advanced ideas.
67. new way to work things
68. New way of doing something
69. New way of doing old things (improved with less time consumption)
70. new way of dealing with different issues
71. New way in something, no body is talking or research that before!
72. new view or possibility to do something better
73. New useful and creative product.
74. new thing for better life
75. New theory in science and of course, the application of it in a way usefull for people.
76. new technology
77. new technological advance at some specific area
78. New stuff created in order to improve way of life.
79. new solutions related to products, processes, markets, and organizational arrangements
80. new results of positive attempt to solving problems
81. New product or service which is useful for certain group of people.
82. new product or application or marketable item
83. New or renewed product or process which is accepted by customers and which has generated the value (usually profit) to the innovator (firms etc)
84. New or improved product, process, marketing approach, organizational scheme, realized on the market, locally or internationally
85. new method, model, knowledge, patent.
86. new method of the work or treatment
87. New knowledge or improved method
88. New ideas, methods or inventions introduced in science, industry, economy, etc.
89. New ideas put to practice for the benefit of human society and environment.
90. new ideas for solving old problems, new practises
91. new idea, new way of doing things, new procedures, finding the new ways of using different technologies and techniques for doing something , etc.
92. New idea in society that can give some positive result
93. new idea applied in the reality
94. new horizons
95. new feature of existing product, new product, new technology, new process, new method of application of existing products, new way of result analysis, new idea, synergy of existing products & technologies in new application
96. new approaches of solving tasks and problems
97. New approach to procedures or way of doing things
98. new approach to old things or total new perspective and solution
99. New approach to a service or a production process
100. New answer which you already test.
101. new achievement in science and technology
102. new product
103. naci novi smisao necemu, kretivna primena ...
104. Mala ili velika promena na bolje u oblasti kojom se bavimo i koja donosi napredak nama i drugima
105. Making something better and more efficient.

106. making something better or the new way of doing something
107. Making new project, method, and product.
108. making new or significant improved products, service, marketing and organizational methods for which there are the market needs.
109. make life easier
110. it means new technical
111. It means how to convert idea into market product or service. Beside that it is also related to new method of production process.
112. It is something new in its functioning.
113. It is initiative for providing of better solutions in different areas of life.
114. It is improved: product, method, mathematical model, control,
115. It is doing something completely new and even better that will improve the quality of life.
116. It is an original solution for a problem without an experimental confirmation or theoretical understanding.
117. it is a result of that study, result that push things more further on the benefit off all (at least is should be on the benefit of all, but very often it is not
118. It is a kind of improvement of some technological process, device, or equipment in order to make some savings, reduction of pollution or to be more easier for use
119. It is a break-through.
120. is to change things on better way ,to make news
121. Invention in field of new or improved product, service or technology which with the potential of marketability.
122. Invention brought to the market
123. Invent a novel product/service using new science/technology
124. Introduction of new technology, organization, materials or practice and improving efficiency of existing systems, machinery or organization.
125. Introduction of new models, patterns, relationships, behaviours and elements that generate a tangible/obvious value added by simplifying a way of doing things, by making complex processes easier to understand or more pleasant to go through.
126. introduction of new methods and technologies applicable
127. Introducing new products, services and process
128. Introducing new methods and techniques for solving given problems, application of the knowledge in explanation of different phenomena, etc.
129. Innovations is the creative change involved in the existing situation with the useful result
130. Innovation is new idea, not plagiature
131. Innovation is anything's what do you do in your business
132. Innovation represents a human achievement that summarizes the idea and the will to pursue the ultimate goal.
133. Innovation of new techniques, technologies and new scientific knowledge.
134. Innovation means turning ideas into business - it must bring money at the end.
135. Innovation means a product / service / technological processes development, in relation to the current state of the art
136. Innovation means a new way of doing something. It may refer to incremental, radical, and revolutionary changes in thinking, products ...
137. innovation means a new technology or a new creation, new matter, provided by clear, proved and specified previous actions
138. Innovation is useful realization of an idea manifesting in new or improved product, method, process etc.
139. Innovation is upgrading of something that already exist.

140. Innovation is to improve the methodology, approach, process, presentation, evaluation of what we do and how we work. It includes investment in people, conditions, processes, new knowledge ...
141. innovation is to find new relationship, or approach or method for cure
142. Innovation is the result (theory or material) of an scientific analysis or investigation which cannot be 'totally' similar with existing one.
143. Innovation is the development of new product or process.
144. Innovation is the conversion of ideas into practical solution of the new stuff.
145. Innovation is successful application of invention in the market or in the life.
146. Innovation is something that cannot be seen in Serbia. Many people call their results innovation, but they are most often just already known knowledge just applied in a specific application that has not been applied before but there are a lot of similar a
147. innovation is something new, not already implemented but something that will bring benefits to life
148. Innovation is something completely new, either a new product/idea/material/etc. or a new way of using a well-known object/idea/method etc.
149. innovation is on the one hand a crazy idea but afterwards also the implementation of that idea; innovation is something new
150. Innovation is new, better way to do something known, or new way to organized, rearrange or simplified some existing technology
151. Innovation is new or improved product/services, process, technology, business model or organization change which has its validation at the market.
152. Innovation is new or improved product, process, service, marketing and organization skill, announced at the market.
153. Innovation is improving already present solutions or developing a new one for some problem.
154. innovation is improvement, change and added value, as well as doing things faster, better or more creative
155. Innovation is how to survive in Serbia
156. Innovation is giving of opportunities to profitable applications of new solutions and results and/or looking for any chance for its implementation on practice.
157. innovation is every improvement made in either process, product, organisational or marketing methods, etc (Oslo Manual), while technological innovation is mostly connected with science.
158. innovation is decreasing something which is already existing
159. Innovation is change or some new in the product/service/process or what was introduced as a new, a new phenomenon, newspapers.
160. innovation is application of new methods or technologies in providing solutions for better life
161. Innovation is a way of thinking or doing which enables us to try new things.
162. Innovation is a term that is used to describe how someone creates new value by development and implementation of knowledge in a new ways.
163. Innovation is a process of creating and applying an idea that leads to success.
164. Innovation is a process for making best use of business own resources and constantly develop creativity and skills.
165. Innovation is a new way of doing something that is new and very useful
166. Innovation is a new way of doing something, which something comes from an idea, which later can be applied successfully in practice. The idea needs to revolutionize the way of thinking and conducting the previously existing processes.
167. Innovation is a new solution for either
168. innovation is a new idea, a way of doing something differently from the ways it was done before

169. Innovation is a new discovery in the field of technology that has the reason for its existence, purpose and objective to use.
170. Innovation is a new approach to do something, or solve a problem.
171. innovation is a new application of science
172. Innovation is a kind of improvement of already excising technology device, application, equipment or else . It should certainly save some energy and money
173. Innovation is a high-impact solution to an important problem under very strict constraints and precisely defined objectives. Usually, the constraints and objectives are financially regulated by a market in the commercial domain, by society norms and gover
174. Innovation is a discovery, invention, new acknowledgement.
175. Innovation in my view is related to the explanation above, as innovation most often happens at the cross-road between the two seemingly unrelated sectors, issues, topics. Innovation means infusion of the new thinking which usually enables faster movement
176. innovation brings solutions to unresolved problems and makes people's life easier
177. in the simplest form, some new achievement which, in some extent, improves present technology or knowledge.
178. In a new way see something.
179. Improvement or a new invention
180. improvement of methodology or application of well known methodology in new circumstances
181. Improvement of existing achievements, bringing it to the next level
182. Improved supply of existing and new products and services
183. idea new products new tools
184. idea
185. I define innovation as product of rationalisation that makes life better and safes resources better.
186. I
187. For me innovation represent generation of new or improved products, processes, and services. Also, it is a new or variant product, idea, process or way of thinking.
188. find a new way of using resources, develop strategy and plans for life in the future...
189. Every new finding
190. Etwas neues zu finden, das man benutzen kan,beser und schnela
191. Discovering patterns, explaining phenomenon. Identifying new use of material present in our environment etc.
192. Development of new or enhanced feathers of the system
193. Develop a new product with required properties for a given application Develop a new procedure (method, technology) to obtain a product
194. Delivery of product or service that has some new value for consumer. It not needed to be completely new product or service, but with some new values
195. Dat nova bolja prakticna rjesenja odredjenih problema
196. Creation of a new product/process as a result of research/study.
197. creation of a new added value (worth) undiscovered to the moment by an individual or as a result of a synergy of a research endeavour undertaken to rise the economic or societal rang of a state or the global community at all.
198. Creating something even if that has no purpose at this time but maybe in the future it could find some purpose and maybe change the world.
199. Compatible with nature laws
200. commercialised invention
201. combine and integrate known into a new product/service/method
202. Change in the system or new approach to some issue, with new ideas that will be applied in practice. The new "light" can target WHAT we see -change will be focus on resource/origin of the specific issue, HOW we use what we see - targeting application of t

203. Building something new that should be step toward creating a prosperous society and better world to live in.
204. better way to do something better = using less energy, money and other resources, easier and faster way to do something - way of thinking
205. better way of doing something
206. Be able to create new quality from old information, knowledge
207. At list 5% difference from the others at the moment.
208. Apply new knowledge in practice to improve it
209. Applied and useful invention.
210. Anything which is new, improve in the way to make things better and useful.
211. An innovation is a product, procedure or service that makes the exploitation of a resource easier, safer or more cost effective.
212. An added value to a product or process which affects many areas of life
213. Advanced solutions based on knowledge and research excellence providing new products and services
214. Advanced solutions based on knowledge and exellency providing new products and services
215. achieving the same goal in alternative way or fashion saving time, money or other resources
216. according to me, innovation is the discovery of practical things that are necessary for our progress
217. A novelty or improvement verified on the market as viable (making profit).
218. A new way of solving certain problems.
219. A new way of production/something new
220. A new way of doing things or a new product.
221. A new fact in understanding some physiological process, new technology
222. A new concept of application of existing knowledge in a new field, of completely new knowledge.
223. A new approach or new technologies which can be widely used in the future.
224. A creative way of looking at already widely known facts, a lucid shortcut to resolve any problem.
225. A break-through in doing things, within the above-described set of activities