Artificial Intelligence Policies Association (AIPA) Research for the Future

Disaster and Digitalization Perception: Smart Cities

#AIPAFR

Reference to the report:
Zafer Küçükşabanoğlu, Volkan Kılıç
Artificial Intelligence Policies Association (AIPA), Kuantum Araştırma
AIPA Research of the Future: Disaster and Digitization Perception: Smart Cities quantitative research report

April 2023

On February 6, 2023, our country faced major earthquakes centered in Kahramanmaraş, which is felt in 11 provinces. More than 50 thousand of our citizens lost their lives and thousands were injured. Once again, we wish God's mercy on our citizens who lost their lives in this great disaster, and a speedy recovery to our wounded citizens. After the great disaster, the concept of smart cities came to the fore with the importance of digitalization in pre-disaster and post-disaster management. Solid buildings and ground can save lives in earthquakes. In this earthquake, we saw that the speed and convenience brought by digitalization can also save lives before and after the disaster. I would like to express that we have established a "Disaster Management" commission within our association in order to raise awareness of our society on these issues and to present our ideas to policy makers, and we have started working on this issue with our dozens of members.

AIPA has made great contributions to the technology ecosystem by announcing the researches of "Artificial Intelligence Perception in Society" in June 2021, "Artificial Intelligence Perception in Businesses" in October 2021, and "Metaverse Perception in Society: Social Impact" in June 2022, "Artificial Intelligence Perception in Businesses - 2" in November 2022 and "Artificial Intelligence Perception in Education" in December 2022, in order to plan the right moves regarding individual and social competence in the field of technology, especially artificial intelligence. AIPA basically acts with the mission of raising awareness in the society on technological issues, especially artificial intelligence. However, maintaining this mission correctly and shaping the future of the technology in our country depends on discussing the concept of "Smart Cities" today. Because every work and step that is done without researching the smart city perception will not have the desired effect and will not reach the right audience.

The continuation of the urbanization process is an alternative approach to the feasibility of urban behavior practices. In this sense, systems that enable more efficient and effective use of limited resources for the basic factors of city life such as housing, transportation, energy and security have started to be preferred primarily for countries and societies. Smart cities create great opportunities for countries and societies. In order to take advantage of these opportunities, it has become a necessity for countries to redesign their cities so that they do not fall behind in the digital global economy.

Digital transformation represents the inevitable/negligible for every country and society that wants to strengthen its economy. Our association AIPA, which has the goal of "accelerating our country's goal of being among the top 10 economies in the world with technology entrepreneurship", argues that the first step at this point is to reveal the current situation. Following this assessment, appropriate actions and policies need to be developed. With the first and only "Disaster and Digitalization: Smart Cities" research in Turkey, AIPA researched and analyzed the knowledge level, opinion and perception of the society about this concept. Now, plans should be made and steps should be taken based on this research, so that the opportunities brought by this concept are benefited and necessary precautions are taken.

We would like to express our thanks to the Founder of Kuantum Araştırma and AIPA Vice Chairman Volkan Kılıç and his team, to our AIPA Advisory Board Member and Smart Cities Expert Assoc. Dr. Aysu Kes Erkul, to our AIPA Vice Chairman Dr. Umut Demirezen, to our AIPA Board Members Assoc. Dr. Şebnem Özdemir, Selin Duru and Muzaffer Can Atak and to everyone who contributed, especially our Executive Assistant Merve Yıldırım for enabling the conduct of such a critical and comprehensive research.

AIPA will continue to take responsibility for preparing our society for the concepts of digitalization and smart cities in disaster management so that our citizens learn and discover these concepts.

Kind regards.

Zafer Küçükşabanoğlu

Artificial Intelligence Policies Association (AIPA) Founder and Chairman

Use of Mobile Phone Applications that Provide Support in Disaster Situations

Various mobile phone applications have been developed to be used for various purposes in disaster management and disaster situations. The most well-known of these are AFAD Acil, 112 Acil Yardım, Düdüğüm, AKUT Güvendeyim and Bridgefy applications. In our sample, AFAD Acil comes to the fore with the highest rate of using these applications / having them downloaded to the mobile phone with 53.8%.

It is noteworthy that this rate is relatively low and the download date of the application is after February 6, 2023. In addition, there is a serious increase in the use of applications after the 6 February Kahramanmaraş earthquake. An increase of more than 100% is realized in the use of AFAD Acil and Akut Güvendeyim, whilst an increase over 400% in Düdüğüm and Bridgefy draws attention. It is observed that the use of Bridgefy is mainly due to internet connection problems experienced after the Kahramanmaraş earthquake.

When it is evaluated as a whole, we might say that the experience in the recent past prompted individuals to use technological opportunities, but did not increase the use of phone applications at high rates.

Risk Perception Regarding Earthquake

As expected, the risk perception regarding earthquake is higher in Istanbul (95.7%) and İzmir (97.0%) than in Ankara (71.6%). It is possible to guess that for Ankara, which is known as having 'low risk in terms of earthquakes', this rate has increased to this level due to the earthquake affecting 11 provinces in the recent past.

On the other hand, the most striking result regarding risk perception is that the risk perception decreases significantly as the scale gets smaller. Regarding the residency of the participants, their risk perception is decreasing as moving from the city to the neighborhood and even the building they live in. This is an unconscious reflection of the need to feel safe. In a way, it turns it into a self-fulfilling prophecy without a conscious thought. The participants tend to normalize the risk, which they cannot change or reduce for many reasons, with the thought that "the house I live in is not risky, the city I live in is risky, but I am safe".

In other words, individuals who cannot fulfill the practical and financial requirements of taking precautions for various reasons may tend to ignore the risk.

In this context, the rate of those who consider taking precautions against possible earthquakes is 65.7%. Although this rate does not differ statistically according to provinces, the rate of taking measures has significantly increased to 75.0% in the 25-34 age group. Considering the earthquake agenda of the society, the widespread discussions in the media about a major earthquake expected in Istanbul, and the recent disaster experience; we might say that this rate is low.

The majority of those, who consider taking precautions against possible earthquakes, are mentioning about leaving the building in case of an earthquake and meeting their needs outside the building. The fact that the most frequently mentioned earthquake measure is 'preparing an earthquake bag' with 53.0% clearly expresses this situation. On the other hand, the fact that measures such as strengthening the building, benefiting from urban transformation or changing houses are expressed in small proportions, shows a parallelism with the risk perception explained above. Since individuals have a relatively low risk perception regarding the building they live in, the measures they plan to take are based on the assumption that their buildings will not be demolished completely.

Use of Social Media in Disaster Situations

85.9% of the participants think that the use of social media in disaster situations will be beneficial. It is not difficult to estimate that this high rate is related to the experiences in the 6 February 2023 earthquakes. Moreover, social media usage rates are quite high, especially Instagram with 85.3%. While the rate of watching TV, which increased significantly during the pandemic, was at a lower level until the earthquake, it has increased during the earthquake period.

Knowledge and Perception in Regard to the Smart City Concept

Although 37.4% of the sample state that they have heard of the Smart City concept before, only 28.4% has knowledge.

Considering the participants' information level about the smart city concept, 31.8% made an appropriate definition, albeit partially. On the other hand, 18.8% used the term 'earthquake resistant buildings' which is also related to the current earthquake agenda.

When the participants were asked whether they know any smart city applications, only 9.9% answered yes. This ratio explains the low rate of those who have heard the concept, as well as the information confusion. The participants have difficulty in matching the concept of smart city with concrete applications or projects. In this context, when looking at the known smart city applications, it is normal to encounter a rather messy picture. Some of the answers in the table are not related to the concept of smart city and are not even included in current technological applications (rail system, traffic lights, etc.). On the other hand, some of the applications listed are within the scope of e-Municipality. A similar situation can be seen in the table regarding smart city applications that individuals use. While 23.4% of the respondents state that they use Smart City applications, the applications they mentioned are e-Municipality applications at a significant rate (Ex: Public transportation applications with 87.5%). The data on the confusion between the concept of Smart City and e-Municipality will be evaluated separately below.

Knowledge and Perception in Regard to e-Municipality Services

Consistent with the data above, the rate of hearing the concept of e-Municipality among respondents is 61.5%. The reason why this rate is quite high compared to the awareness of the Smart City concept is that e-Municipality applications are intended for direct use by individuals and most of them are offered by municipalities under the title of 'e-Municipality services'. In this context, it is not a coincidence that the e-Municipality definitions made by the participants are 69% accurate.

Artificial Intelligence Policies Association (AIPA) Vice Chairman and Founder of Kuantum Araştırma, Volkan Kılıç
Artificial Intelligence Policies Association (AIPA) Advisory Board Member and Smart Cities Expert, Assoc. Dr. Aysu Kes Erkul

Elements that make up cities make progress by consuming natural resources and production areas according to the pressures derived from increasing population and development. Efforts to control the cities is often insufficient due to the dynamism and mobility of the cities. Mobility is generally perceived as vehicle-oriented transportation based on physical infrastructure. For this reason, all institutions and individual responsibles are trying to find the most efficient and optimum transportation solutions.

Urban mobility is perceived as vehicle-oriented mobility in Turkey as well as in the world. Therefore, plans are mainly based on the solutions to the problems brought about by increased vehicle mobility. Urban transportation problems mainly arise from the increasing use of individual vehicles in Turkey as well as in the world. Since the individual vehicle use exceeds the carrying capacity, urban pedestrian and vehicle mobility slows down over time, and after a while it causes congestion and serious traffic. Although urban planning studies carried out especially by local authorities in Turkey bring solutions to transportation problems; due to various reasons like increasing population and individual vehicle use, inadequacy of public transportation network, parking problems, inability to use sustainable integrated smart transportation systems, problems in the planning process and insufficient level of knowledge, etc., transportation issues cannot be solved and the problems are getting bigger with wrong applications.

Therefore, when the "Smart City" is mentioned, I see a meaningful relationship between people imagining a city where these transportation problems are solved and people thinking that this can be achieved with transportation applications.

Artificial Intelligence Policies Association (AIPA) Board Member, Muzaffer Can Atak

Smart cities are technologies with great potential in terms of sustainability and climate change problems. However, according to the answers given to the questions of 'What is a smart city? and 'Which smart city applications or projects do you know?', the incognizance or misrecognition of these technologies, especially in Turkey, and combining the use of e-technology services with smart cities might have a negative impact on the fight against climate change. On the other hand, when used correctly, Smart Cities might provide many advantages to achieve climate targets and play an important role for a sustainable future.

First of all, smart cities use innovative technologies to achieve energy efficiency. These technologies include smart lighting systems, solar energy systems and energy management technologies. Intelligent lighting systems optimize lighting and save energy by using sensors. And solar energy systems produce energy without harming the environment by using renewable energy sources. Energy management technologies, on the other hand, constantly monitor energy consumption and use the obtained data for optimization. All these technologies reduce energy consumption and carbon emissions.

Secondly, in smart cities, transportation management systems decrease emissions by reducing traffic congestion. Smart cities promote less environmentally damaging transportation options using technologies such as smart public transportation systems, bike-sharing programs and electric vehicle charging stations. In addition, these systems save time and energy by easing traffic flow.

Thirdly, environmental monitoring systems are used in smart cities. These systems continuously monitor air & water quality and other environmental factors. These data can be used to make decisions about measures to reduce pollution and protect the environment.

Fourthly, waste management systems promote sustainable practices such as recycling and reuse. Intelligent garbage collection systems reduce waste management costs and carbon emissions.

The elements we mentioned above are just a few examples of smart cities. In addition, there are many examples such as smart parking systems and security systems.

As a result, as we see in our research report, a more sustainable and livable planet may await us with the formation of smart cities. These cities will contribute to the healthy transformation of society since they are more efficient, more environmentally friendly and more human-oriented. However, the formation of smart cities depends not only on technological developments, but also on urban planning and management. For this reason, we should not forget that correct planning and management are as important as the development of smart cities for a sustainable and livable planet…

Artificial Intelligence Policies Association (AIPA) Board Member, Selin Duru

Zafer Küçükşabanoğlu - Artificial Intelligence Policies Association (AIPA) Founder and Chairman

Volkan Kılıç - Artificial Intelligence Policies Association (AIPA) Vice Chairman / Founder of Kuantum Araştırma

Gökhan Varan - Artificial Intelligence Policies Association (AIPA) Vice Chairman

Dr. M. Umut Demirezen - Artificial Intelligence Policies Association (AIPA) Vice Chairman

Assoc. Dr. Aysu Kes Erkul - Artificial Intelligence Policies Association (AIPA) Advisory Board Member

Assoc. Dr. Şebnem Özdemir - Artificial Intelligence Policies Association (AIPA) Board Member

Selin Duru - Artificial Intelligence Policies Association (AIPA) Board Member

Muzaffer Can Atak - Artificial Intelligence Policies Association (AIPA) Board Member

Merve Yıldırım - Artificial Intelligence Policies Association (AIPA) Executive Assistant

Murat Ünsal - Kuantum Araştırma Marketing Director

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Quantum Research conducts researches in accordance with international standards and procedures determined for market researches.

Kuantum Araştırma manages the research processes by respecting the statistics, without compromising on quality and scientific methods.

Kuantum Araştırma is a member of ***Turkish Researchers' Association,***

has ***Trustworthy Research Certificate*** (GAB 2021-2022), ***ISO 20252 Certificate of Quality,***

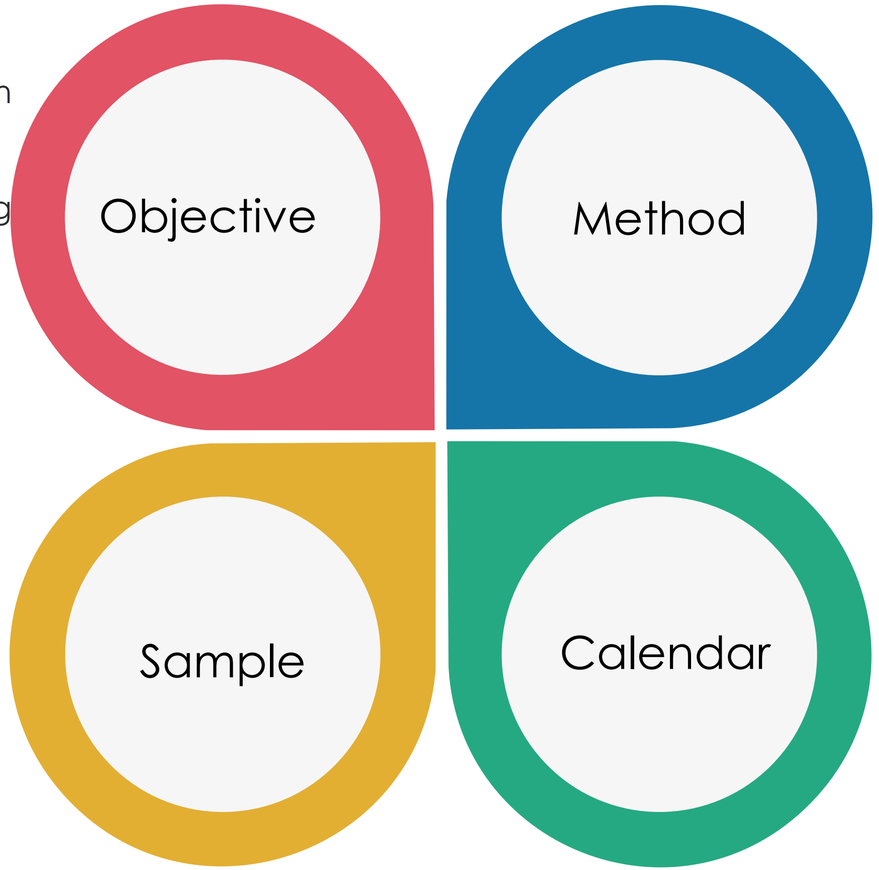
ISO 27001 Information Security Management Certificate and **ISO 9001 Quality Management System.**


Methodology

Disaster and Digitalization Perception: Smart Cities

Methodology Summary

To research and analyze the perception of smart city and e-Municipality concepts on society and the positioning of technology in natural disasters.



Quantitative Data Collection Technique

CAWI (Computer Aided Web Survey)

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In the scope of the research:

A total of 600 people were interviewed,

300 people in Istanbul,

150 people in Ankara,

and 150 people in Izmir.

Fieldwork

March 22 – 23, 2023

Data Control

March 23 – 24, 2023

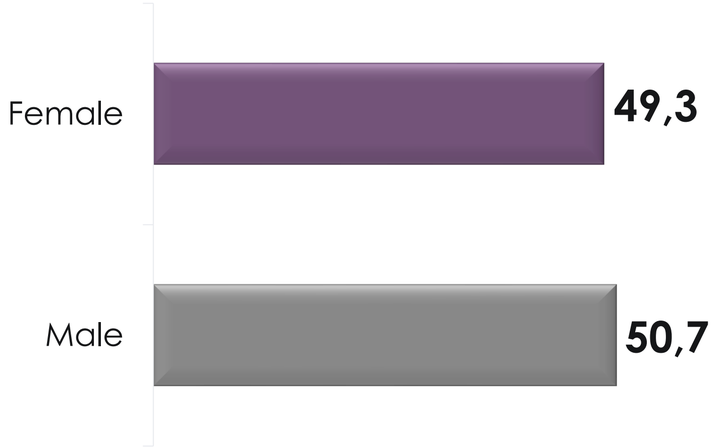
Analysis and Reporting

April 03 – 06, 2023

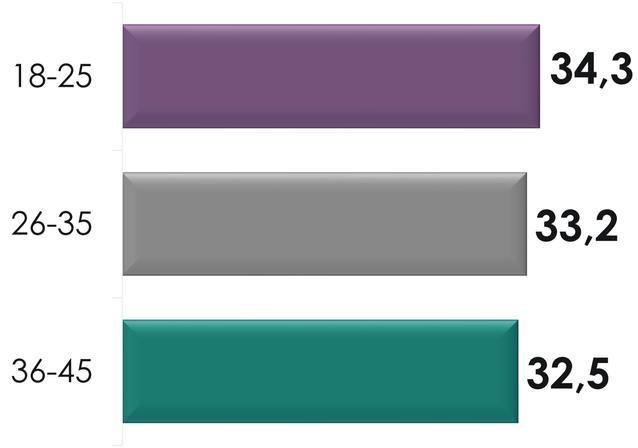
Disaster and Digitalization Perception: Smart Cities

Methodology Summary

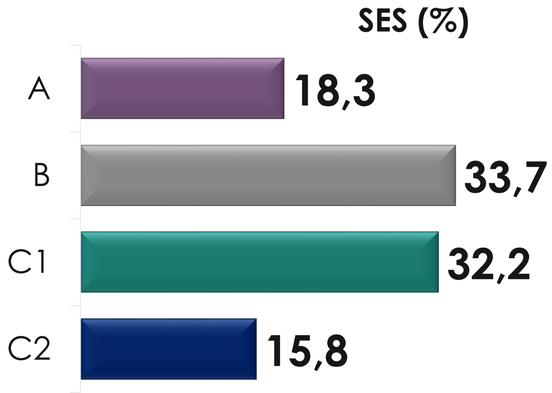
Distribution of Gender (%)



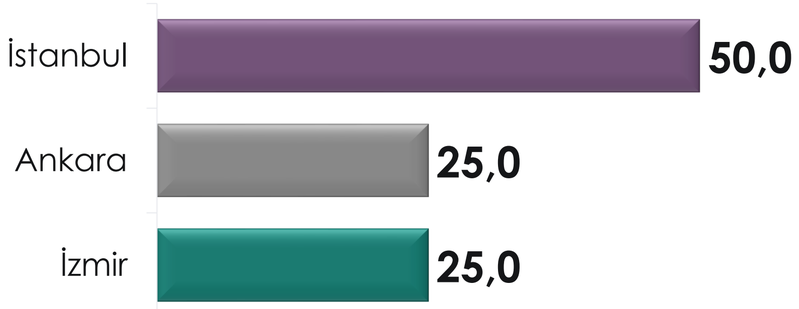
Age(%)



SES (%)



Province (%)



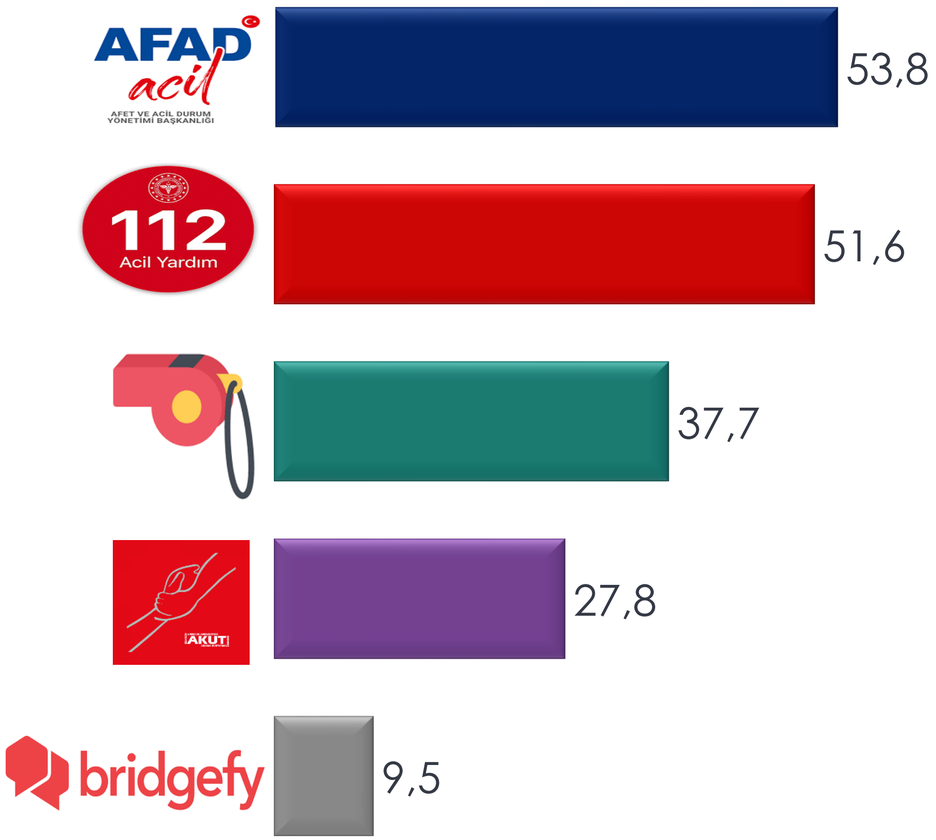
Base	600

Disaster and Digitalization Perception: Smart Cities

- Which of the following apps do you have on your phone?

The participants mainly use AFAD Acil and 112 Acil Yardım applications. AFAD Acil and 112 Acil Yardım are mostly used in the 18-25 and 26-35 age groups, whilst AFAD Acil is mostly used in the 36-45 age group. On the other hand, AFAD Acil is used by A and C2 SES groups, whilst 112 Acil Yardım is used by B and C1 SES groups.

Use of Applications (%)



Multiple Choice

Base	600

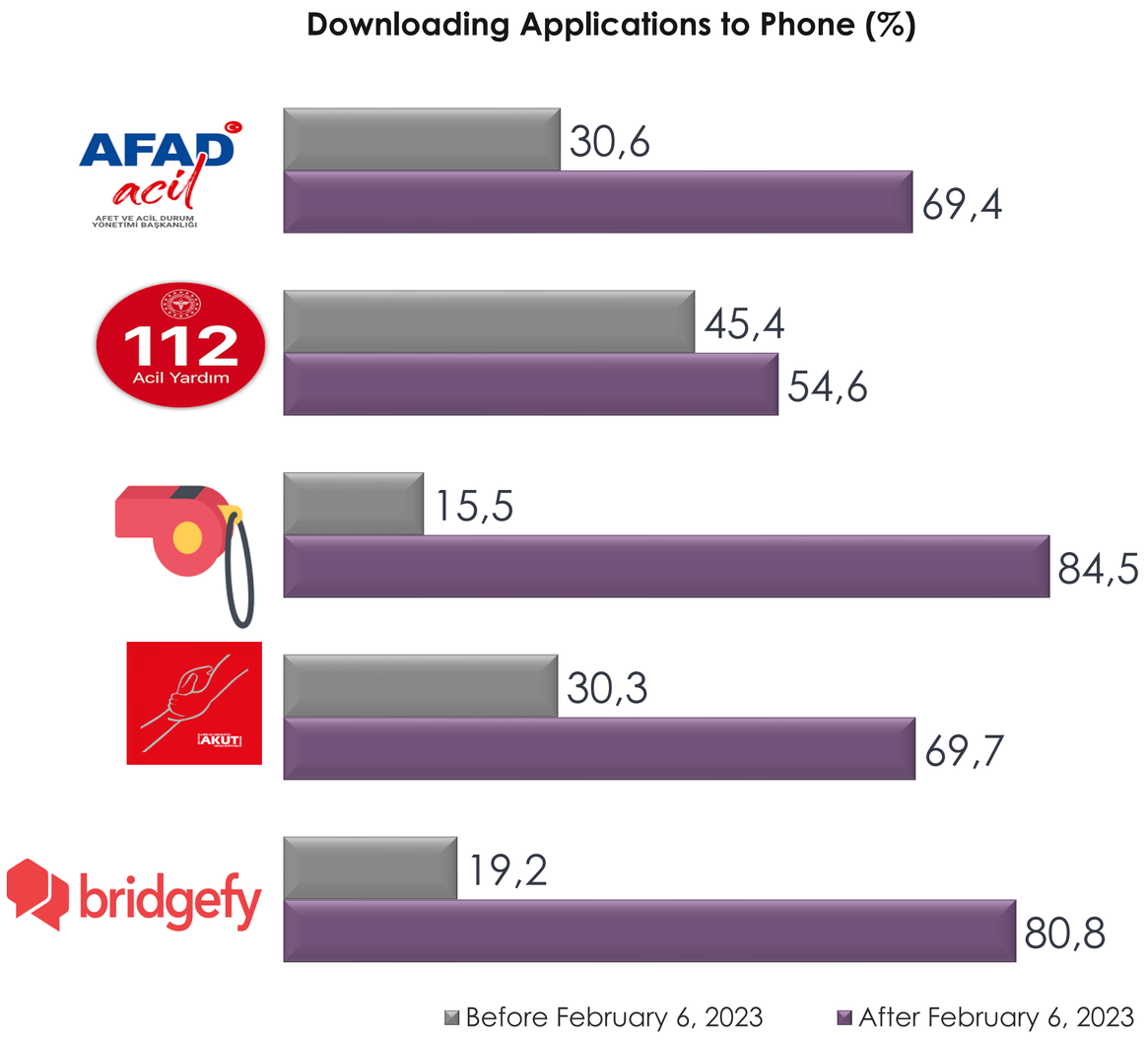
	18-25	26-35	36-45
AFAD Acil	54,9	55,6	52,4
112 Acil Yardım	54,9	65,5	36,6
Düdüğüm	34,1	48,1	36,6
Akut Güvendeyim	23,1	32,5	32,9
Bridgefy	5,5	14,3	12,2

	A	B	C1	C2
AFAD Acil	58,0	59,8	54,5	34,9
112 Acil Yardım	40,0	60,9	59,1	30,2
Düdüğüm	44,0	39,1	38,6	25,6
Akut Güvendeyim	34,0	32,6	26,1	14,0
Bridgefy	14,0	13,0	8,0	-

Disaster and Digitalization Perception: Smart Cities

- When did you download this app(s) to your phone?

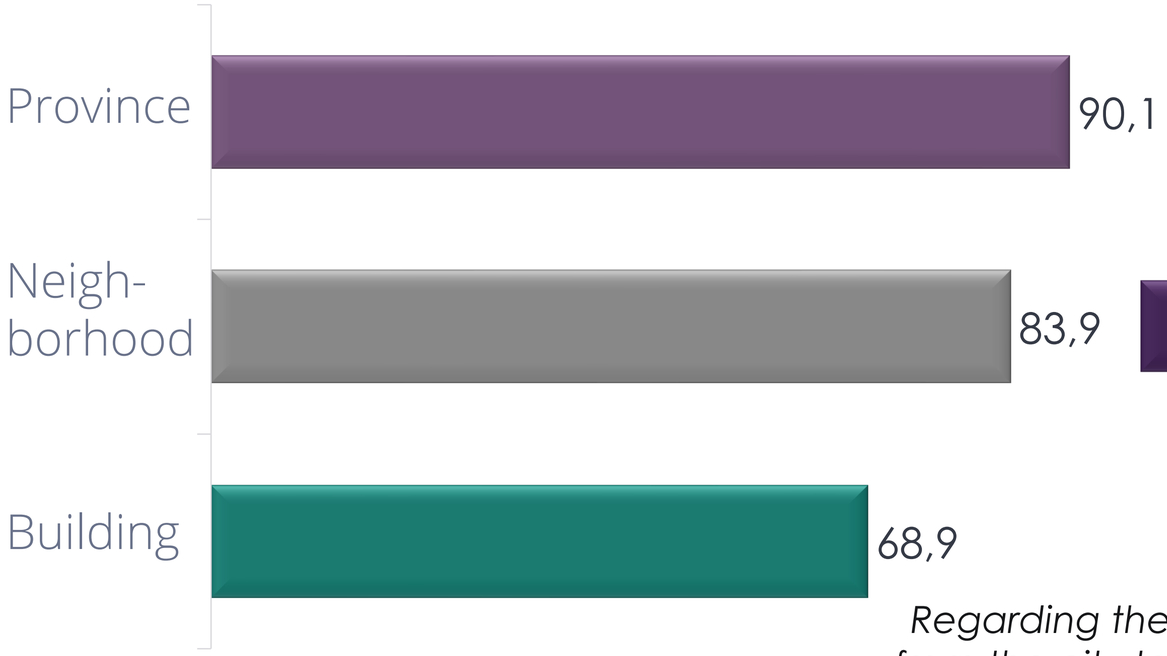
There is a serious increase in the use of applications after the 6 February Kahramanmaraş earthquake. An increase of more than 100% is realized in the use of AFAD Acil and Akut Güvendeyim, whilst an increase over 400% in Düdüğüm and Bridgefy draws attention. It is observed that the use of Bridgefy is mainly due to internet connection problems experienced after the Kahramanmaraş earthquake.



Disaster and Digitalization Perception: Smart Cities

- Do you think there is an earthquake risk in your city?
- Do you think there is an earthquake risk in your neighborhood?
- Do you think there is an earthquake risk in the building you live in?

Areas Considered to Have an Earthquake Risk (%)



Base	600

Area Considered to Have Risk Province Breakdown (%)

%	İstanbul	İzmir	Ankara
City	95.7	97.0	71.6
Neighborhood	86.3	88.1	74.6
Building	72.7	70.1	59.7

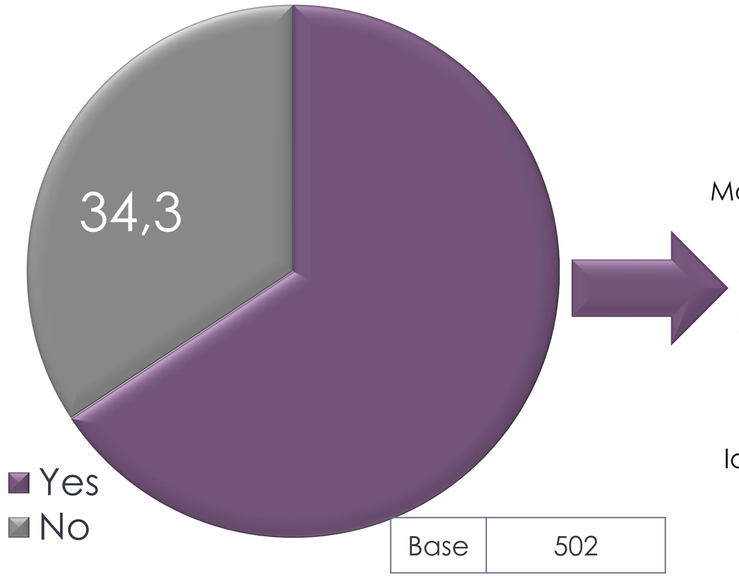
Regarding the residency of the participants, their risk perception is decreasing as moving from the city to the neighborhood and even the building they live in. This is an unconscious reflection of the need to feel safe. In a way, it turns it into a self-fulfilling prophecy without a conscious thought. The participants tend to normalize the risk, which they cannot change or reduce for many reasons, with the thought that "the house I live in is not risky, the city I live in is risky, but I am safe".

Disaster and Digitalization Perception: Smart Cities

- Do you take any precautions/prepare for earthquake risk? Or are you planning to do it?
- What precautions have you taken / are you planning to take?

Only 65.7% of the participants think about taking precautions for the earthquake risk. This rate is increasing to 74.6% in the 26-35 age group, and decreasing to 57.9% in the 36-45 age group. The most frequently mentioned measure is to prepare an earthquake kit.

Considering Taking Precautions for Earthquake Risk (%)



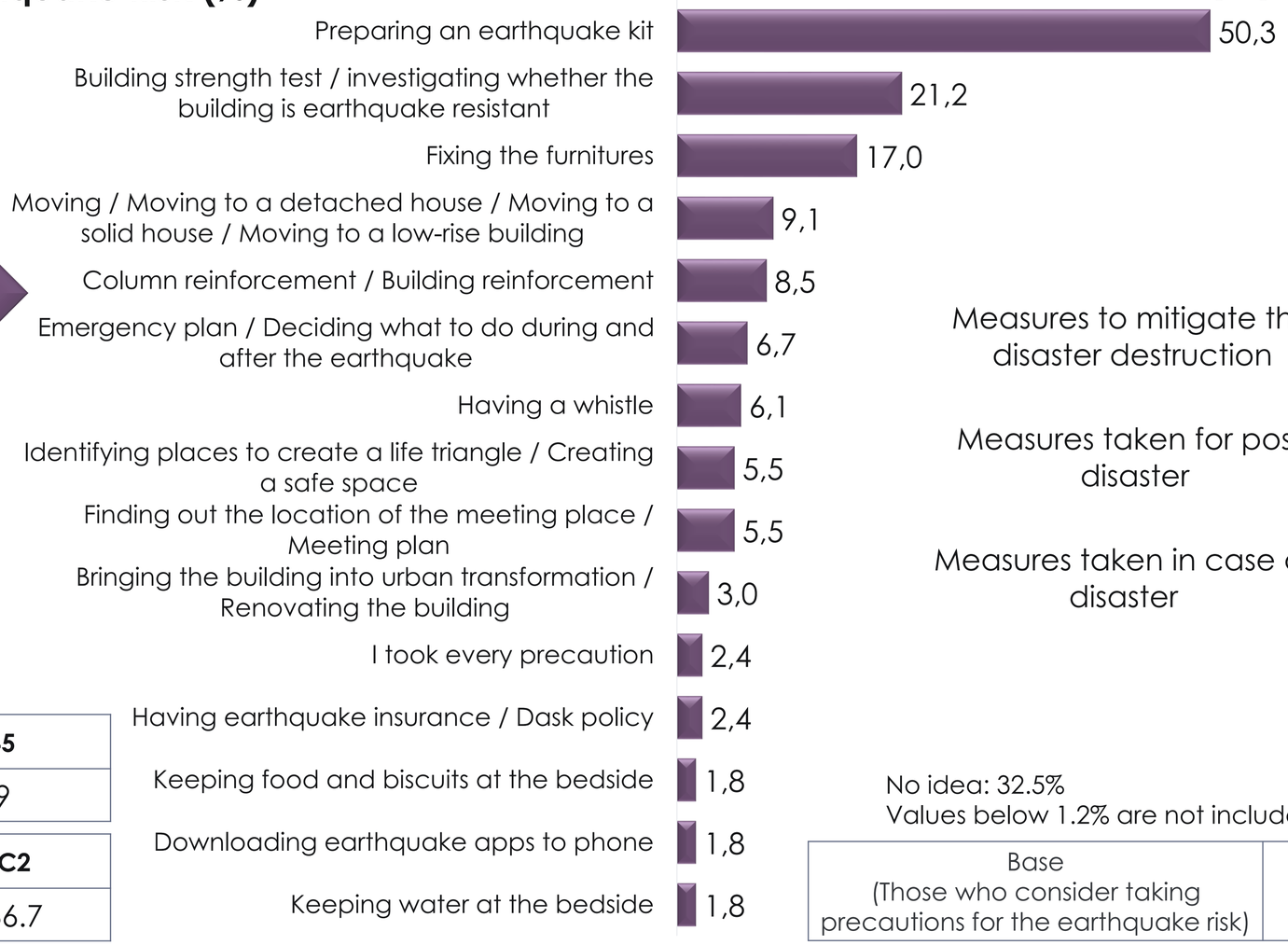
Base	502

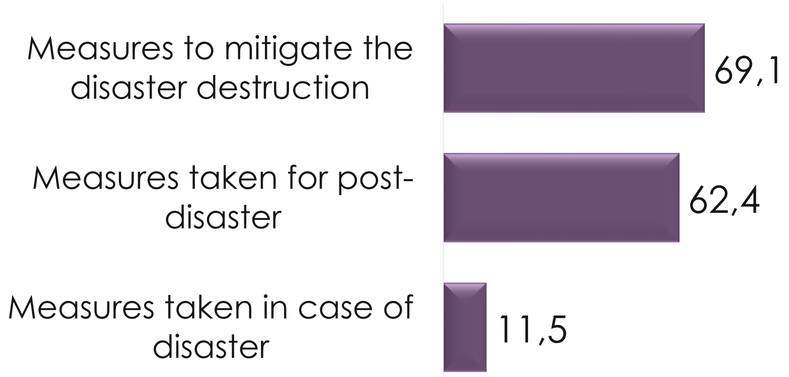
İstanbul	Ankara	İzmir
67.4	62.7	64.6

18-25	26-35	36-45
64.3	74.6	57.9

A	B	C1	C2
72.7	65.5	61.7	66.7

Precautions Considered to be Taken (%)





No idea: 32.5%
Values below 1.2% are not included in the chart.

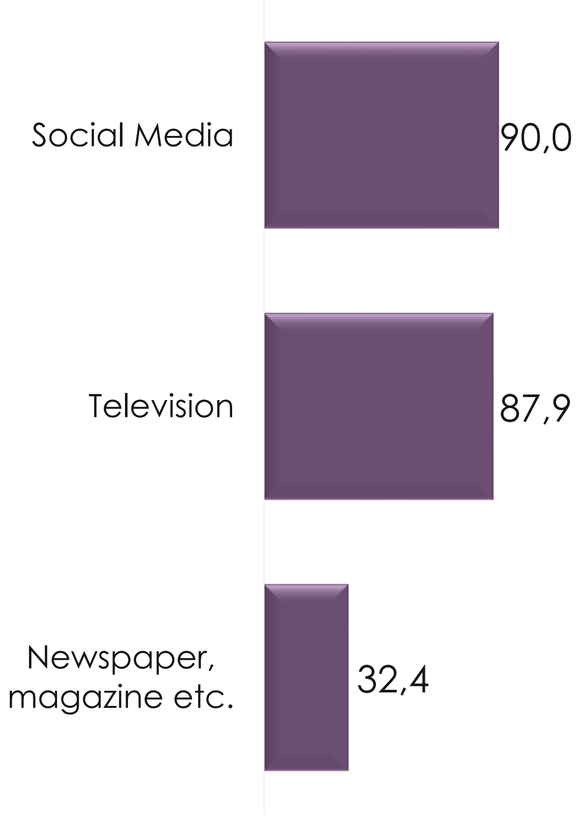
Base (Those who consider taking precautions for the earthquake risk)	330

Disaster and Digitalization Perception: Smart Cities

- Which media tools do you actively use?
- Which social media apps do you use?
- Do you think that social media applications will be useful in natural disaster situations?

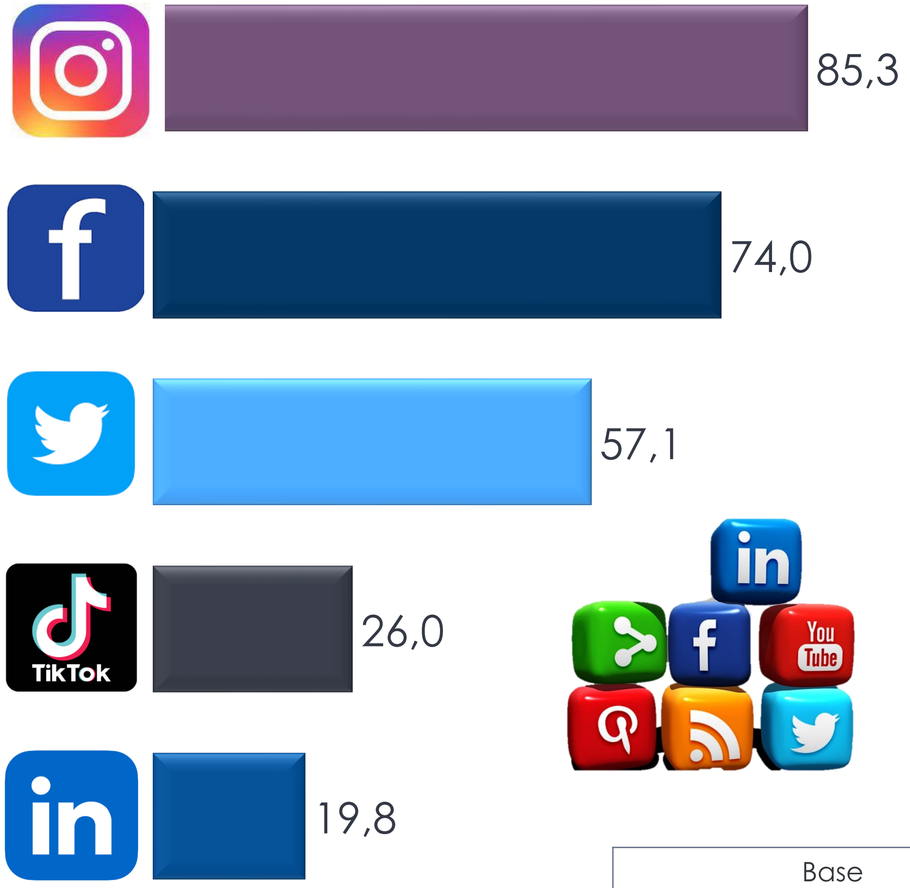
90.0% of the participants use social media. The opinion that social media will be beneficial in disaster periods is 85.9%.

Actively Used Media Tools (%)



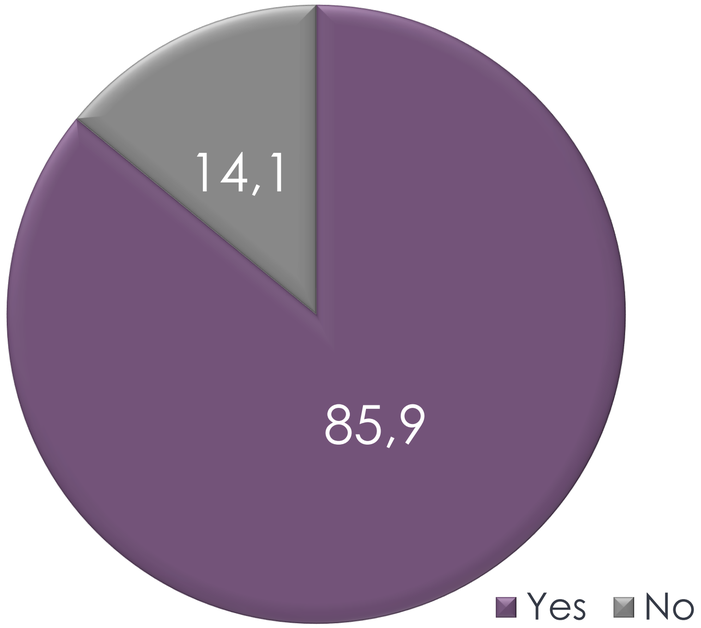
Base	600

Social Media Applications Used (%)



Base (Social media users)	540

Social Media Applications Will Be Useful In Disaster Situation (%)

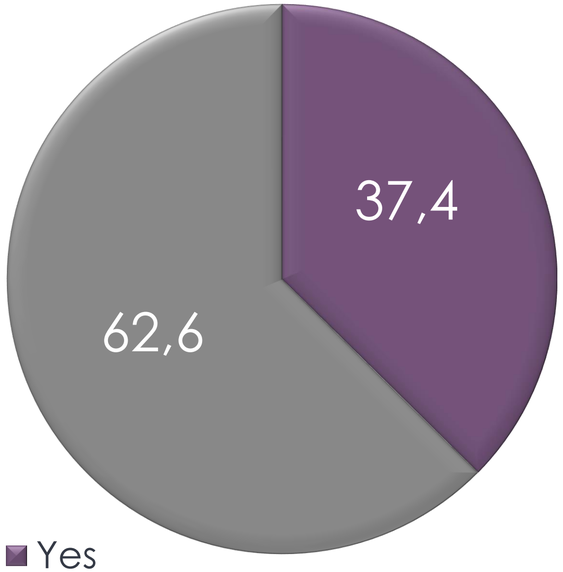


Smart City Concept

Disaster and Digitalization Perception: Smart Cities

- Have you heard of the concept of smart city?

Hearing the Concept of the Smart City (%)



Base	600

Hearing the Concept of the Smart City – SES (%)

18-25	26-35	36-45
35.2	48.1	35.4

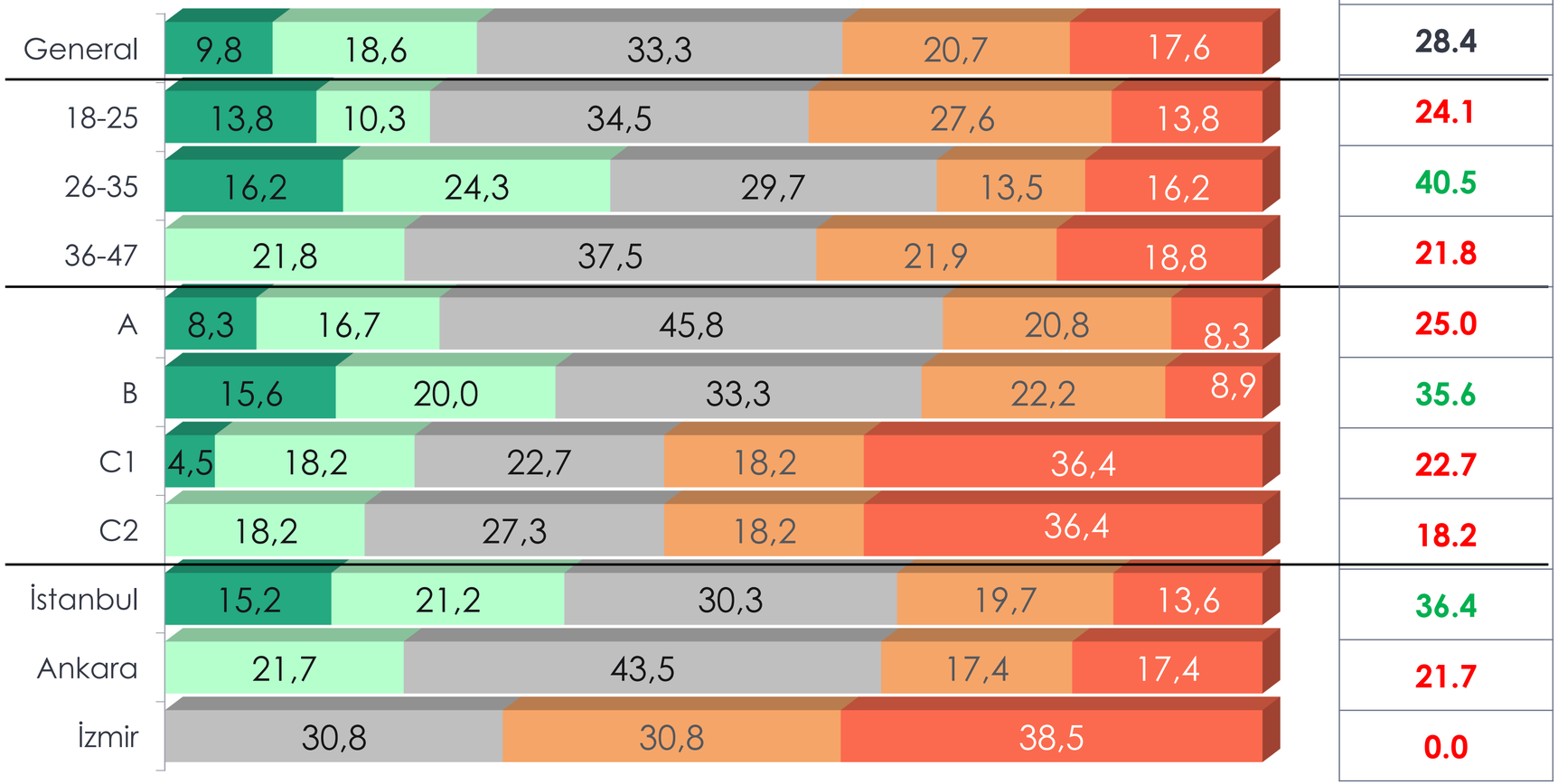
A	B	C1	C2
48.0	48.9	25.0	25.6

The rate of hearing the concept of Smart City is 37.4%. It is observed that this rate increases to 48.0% in 26-35 age group and in AB SES group, whilst it decreases to 25.0% in C1 and C2 SES groups.

Disaster and Digitalization Perception: Smart Cities

- How much do you know about smart city?

Knowledge Level about Smart Cities (%)



TPV
28.4
24.1
40.5
21.8
25.0
35.6
22.7
18.2
36.4
21.7
0.0

Below the general TPV

Above the general TPV

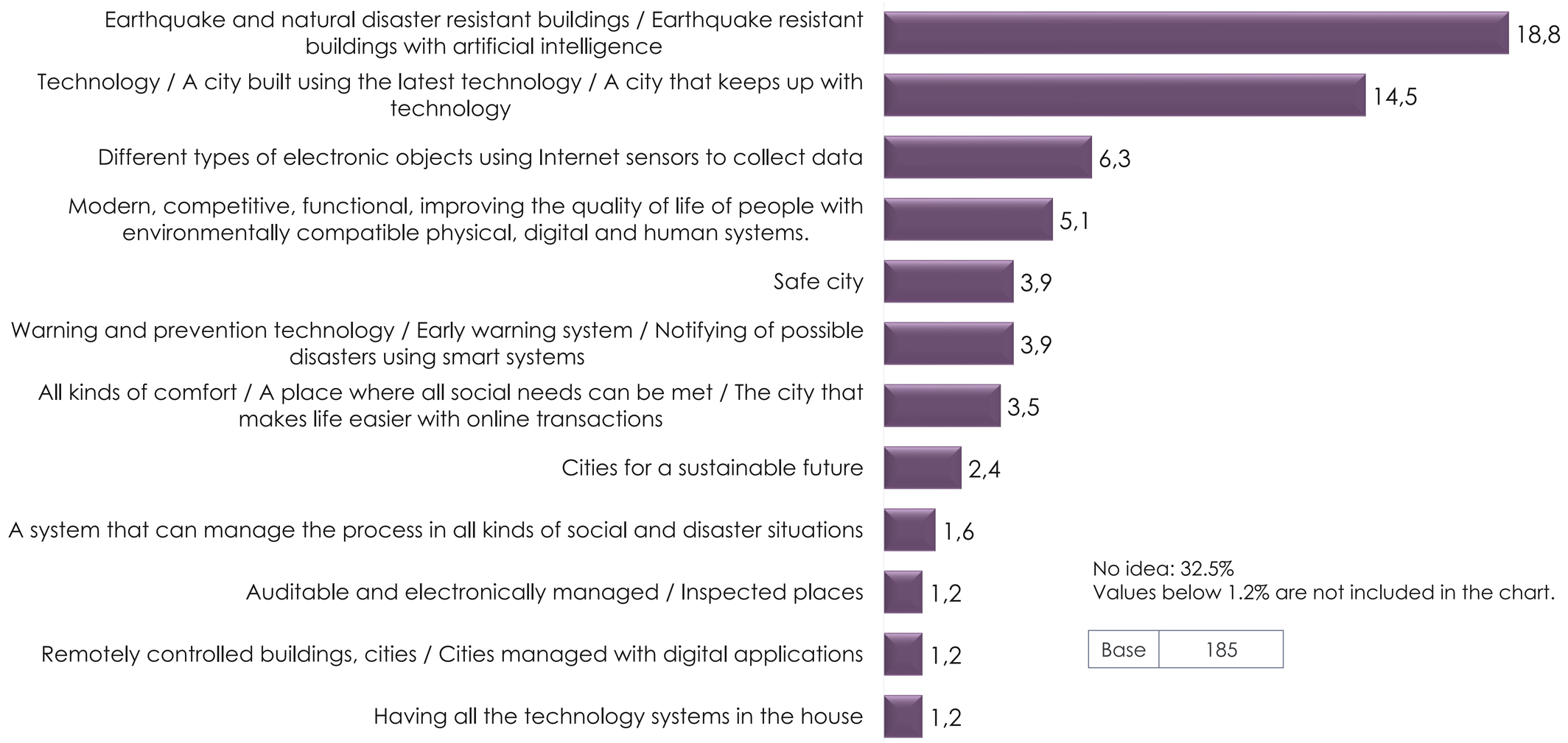
Only 28.4% of the 37.4% population, who said they have heard of the Smart City concept, stated that they are knowledgeable. On the other hand, this rate increases up to 40.0% in 26-35 age group, exceeding the average.

Base (Those who have heard of the concept of smart city)	224

Disaster and Digitalization Perception: Smart Cities

- What is a smart city?

What is a smart city? (%)



No idea: 32.5%
Values below 1.2% are not included in the chart.

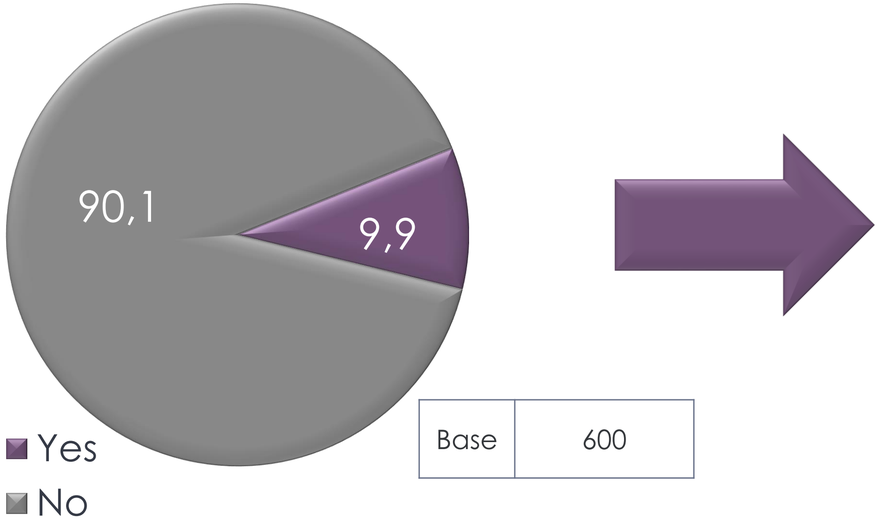
Base	185

Disaster and Digitalization Perception: Smart Cities

- Do you know any smart city applications or projects in the city you live in?
- What are the smart city applications or projects you know?

The rate of knowing smart city applications in the city of participant's residence is 9.9%. The most mentioned applications are road, transportation applications and municipal applications.

Knowing about Smart City Applications (%)



Base	600

18-25	26-35	36-45
8.8	13.0	10.5

İstanbul	Ankara	İzmir
11.5	13.4	3.0

A	B	C1	C2
16.0	13.0	4.5	7.0

Known Smart City Applications (n)

Road and transportation applications	11
Ankara card / Istanbul card / IETT applications / Mobiett	9
Earthquake application / Emergency support in case of disaster	7
Traffic lights / Mobese	7
Smart City	4
Smart recycling / Smart waste / Ankara Metropolitan Municipality waste project	6
İBB square projects / Istanbul transformation project	4
IGDAS's system that closes the valves 10 seconds before the earthquake	2
Learning about risk areas	2
Gaziantep's uninterruptible power supply	2
Digital kiosk	2
Rail system	2
Satellite town	2
Renewable energy	2
Free wifi	2

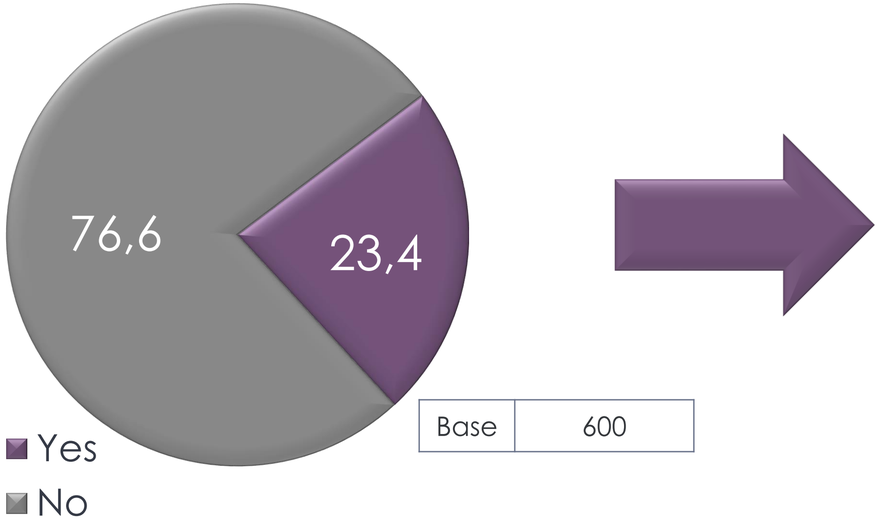
Base	59

Disaster and Digitalization Perception: Smart Cities

- Have you ever used a Smart city app? (Public transport applications,
- public surveys, reporting complaints/suggestions, parking applications, etc.)
- Which smart city applications do you use?

23.4% use smart city applications.
It is stated that mostly public transport applications are used.

Use of Smart City Applications (%)



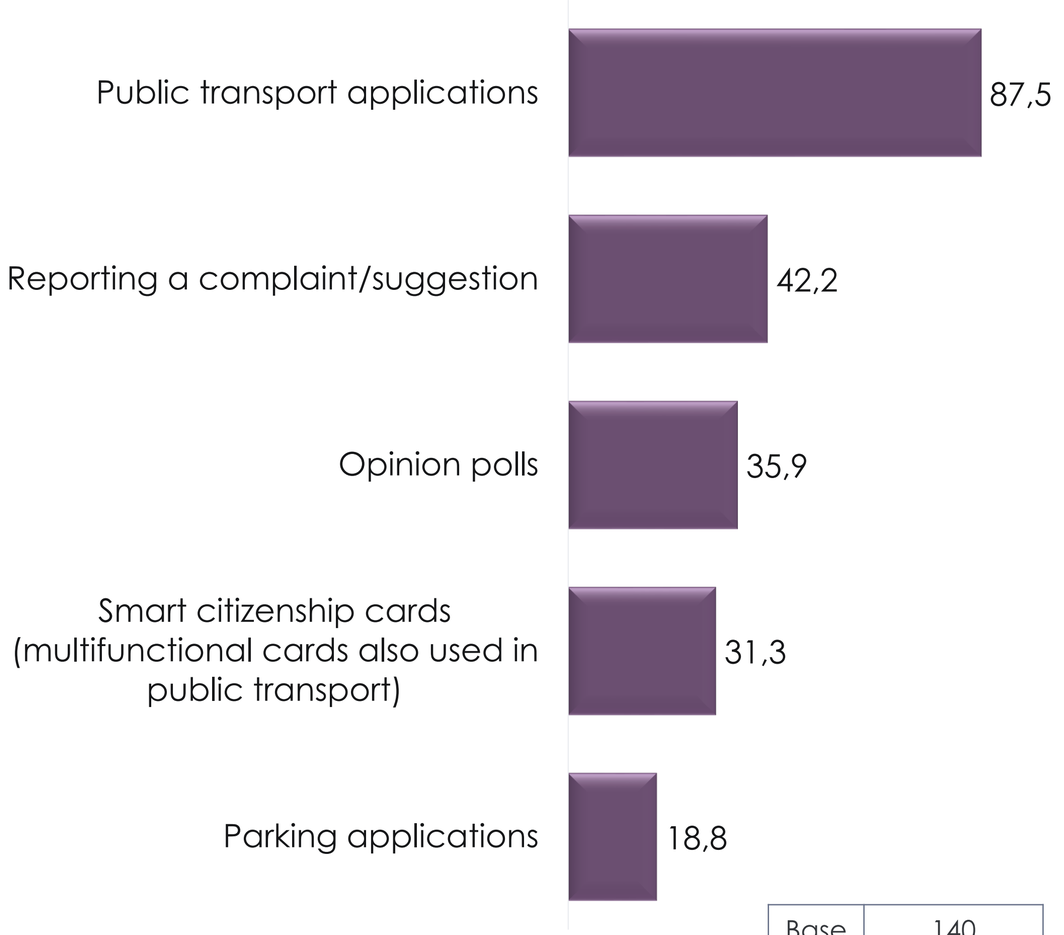
Base	600

18-25	26-35	36-45
22.0	22.1	28.0

İstanbul	Ankara	İzmir
30.2	14.9	17.9

A	B	C1	C2
32.0	30.4	14.8	16.3

Smart City Applications Used (%)

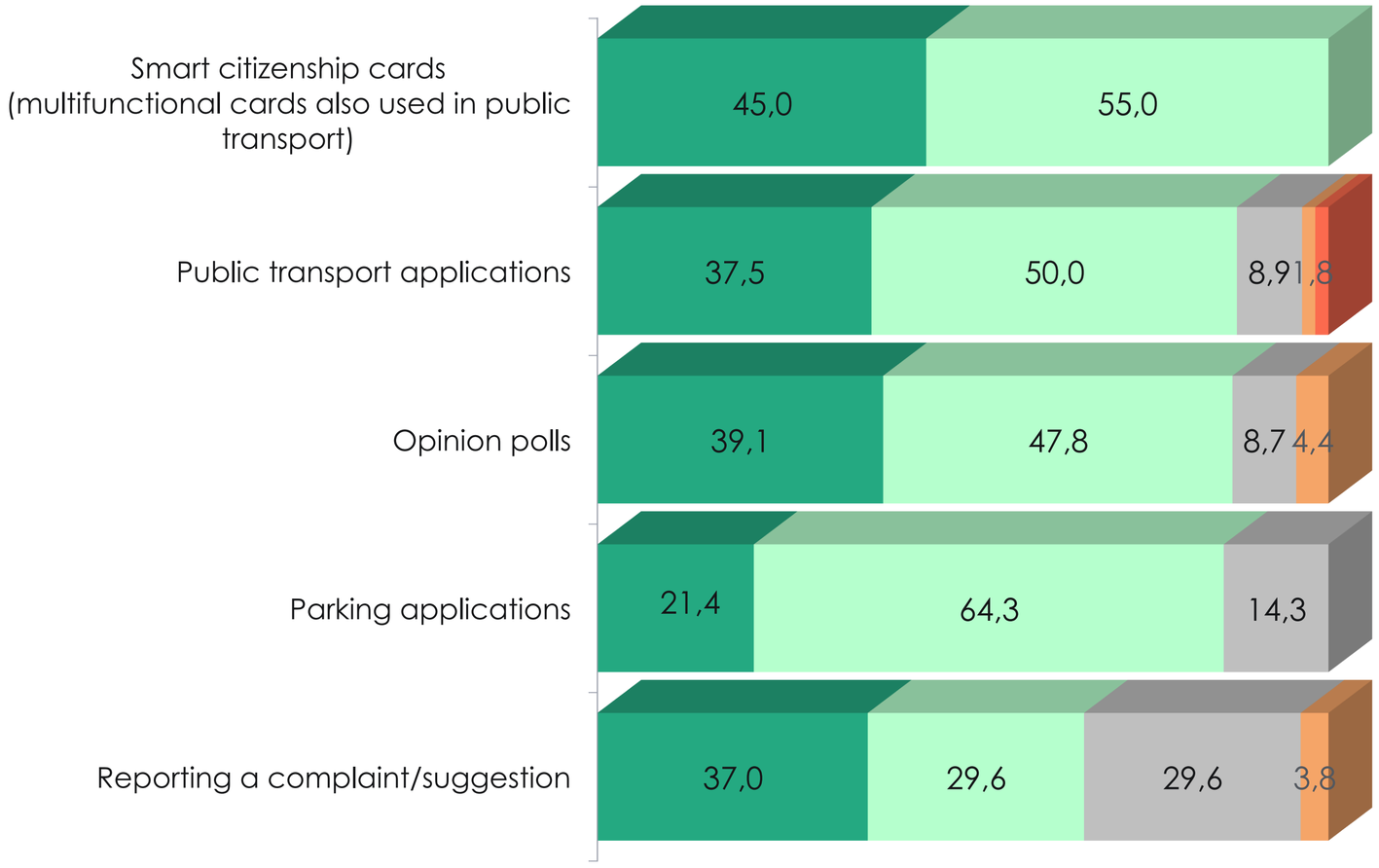


Base	140

Disaster and Digitalization Perception: Smart Cities

- How useful are the smart city applications you use?

Finding Smart City Applications Useful (%)



TPV
100.0
87.5
86.9
85.7
66.6

Base	140

The most useful application is the smart citizenship cards.

TPV average: 85.3

Below the TPV average

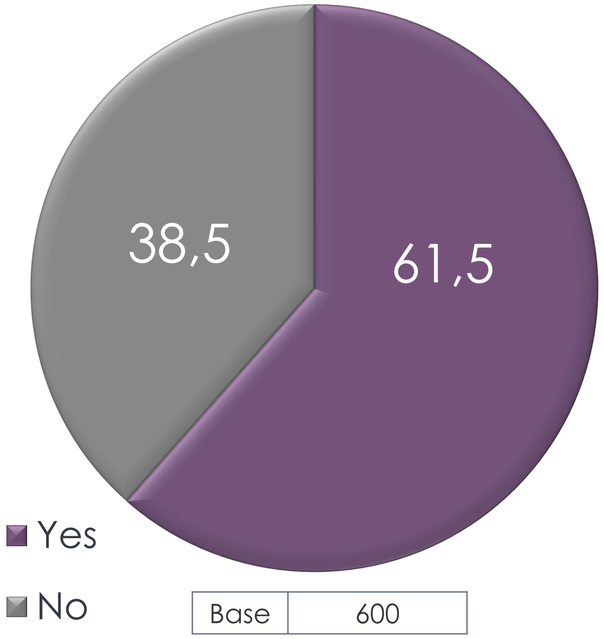
Above the TPV average

e-Municipality Concept

Disaster and Digitalization Perception: Smart Cities

- Have you heard of e-Municipality service?

Hearing the e-Municipality Service (%)



Base	600

Hearing the e-Municipality Service Age – SES - Province (%)

18-25	26-35	36-45
57.6	68.3	70.1

A	B	C1	C2
72.0	70.7	55.7	41.9

İstanbul	Ankara	İzmir
70.5	58.2	46.3

The rate of hearing about e-Municipality service is 61.5%. The groups that mostly heard about this service are 36-45 age group with 70.1%, A SES group with 72.0%, Istanbul with 70.5%.

Disaster and Digitalization Perception: Smart Cities

- How much do you know about e-Municipality?

The most common definition for e-municipality service is access to municipality applications via the Internet / Online / Online payment / Electronic municipality.

Knowledge Level about e-Municipality (%)

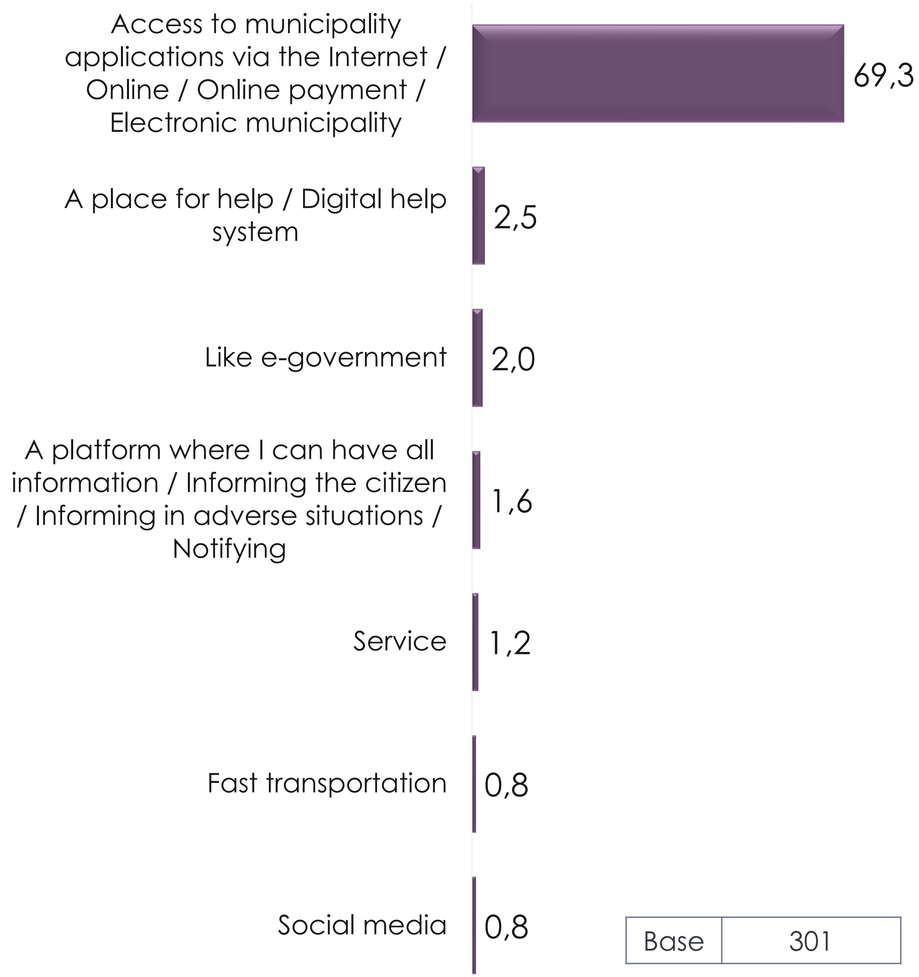
	I have too much knowledge	I have knowledge	I have neither knowledge nor not	I have little knowledge	I have no knowledge	TPV
General	10,1	14,3	38,7	18,5	18,4	24.4
18-25	4,3	14,9	40,4	19,1	21,3	19.1
26-35	7,4	20,4	35,2	18,5	18,5	27.8
36-47	17,9	10,7	33,9	19,6	17,9	28.6
A	8,3	13,9	47,2	16,7	13,9	22.2
B	18,5	13,8	36,9	12,3	18,5	32.3
C1	4,1	16,3	32,7	26,5	20,4	20.4
C2	11,1		44,4	22,2	22,2	11.1
İstanbul	15,3	12,2	36,7	17,3	18,4	27.6
Ankara	20,5		35,9	23,1	20,5	20.5
İzmir	6,5	12,9	48,4	16,1	16,1	19.4

Below the general TPV

Above the general TPV

Base (Those who have heard of e-Municipality)	369

What is e-Municipality Service?(%)

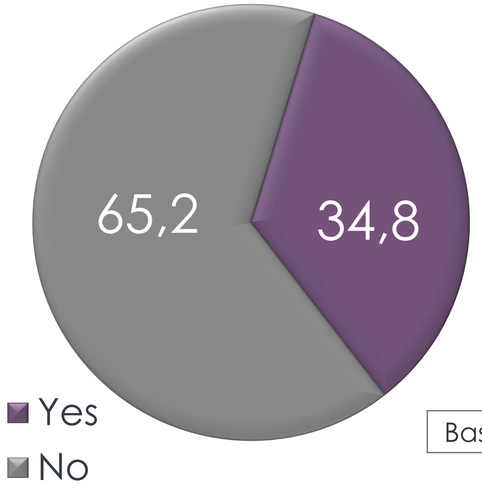


Base	301

Disaster and Digitalization Perception: Smart Cities

- Have you ever used the e-Municipality application? (Bill payment, tax payment, smart meters, complaint reporting, etc.)
- Which e-Municipality applications do you use?

Use of e-Municipality Applications (%)



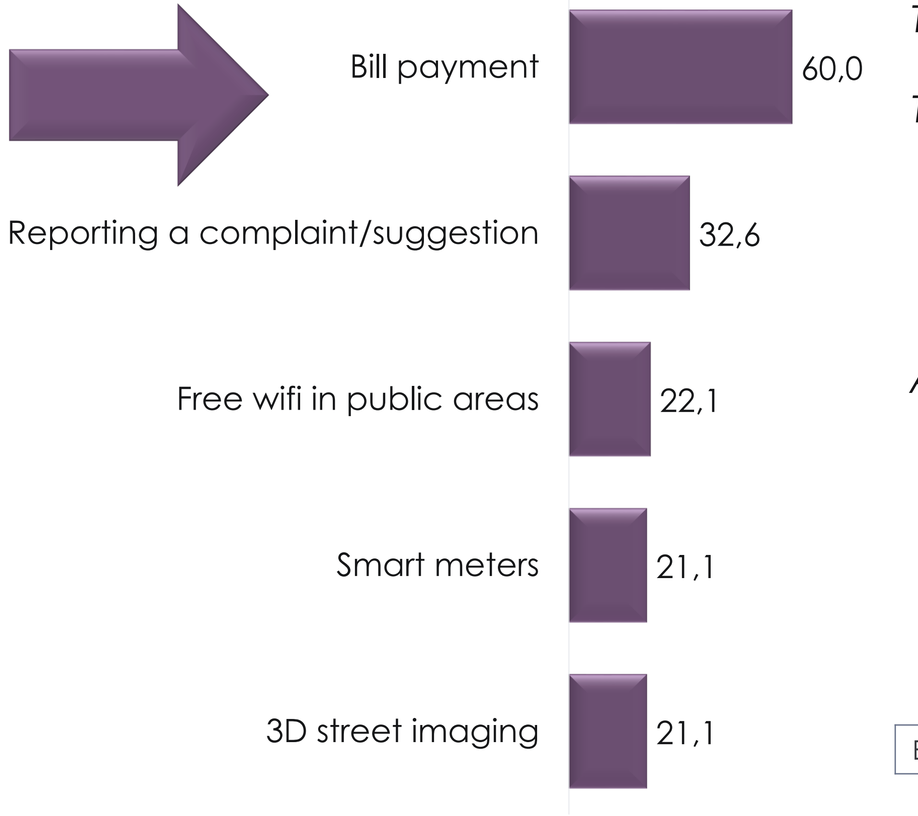
Base	600

18-25	26-35	36-45
35.2	31.2	39.0

İstanbul	Ankara	İzmir
38.1	34.3	28.4

A	B	C1	C2
40.0	52.2	23.9	14.0

Used e-Municipality Applications (%)



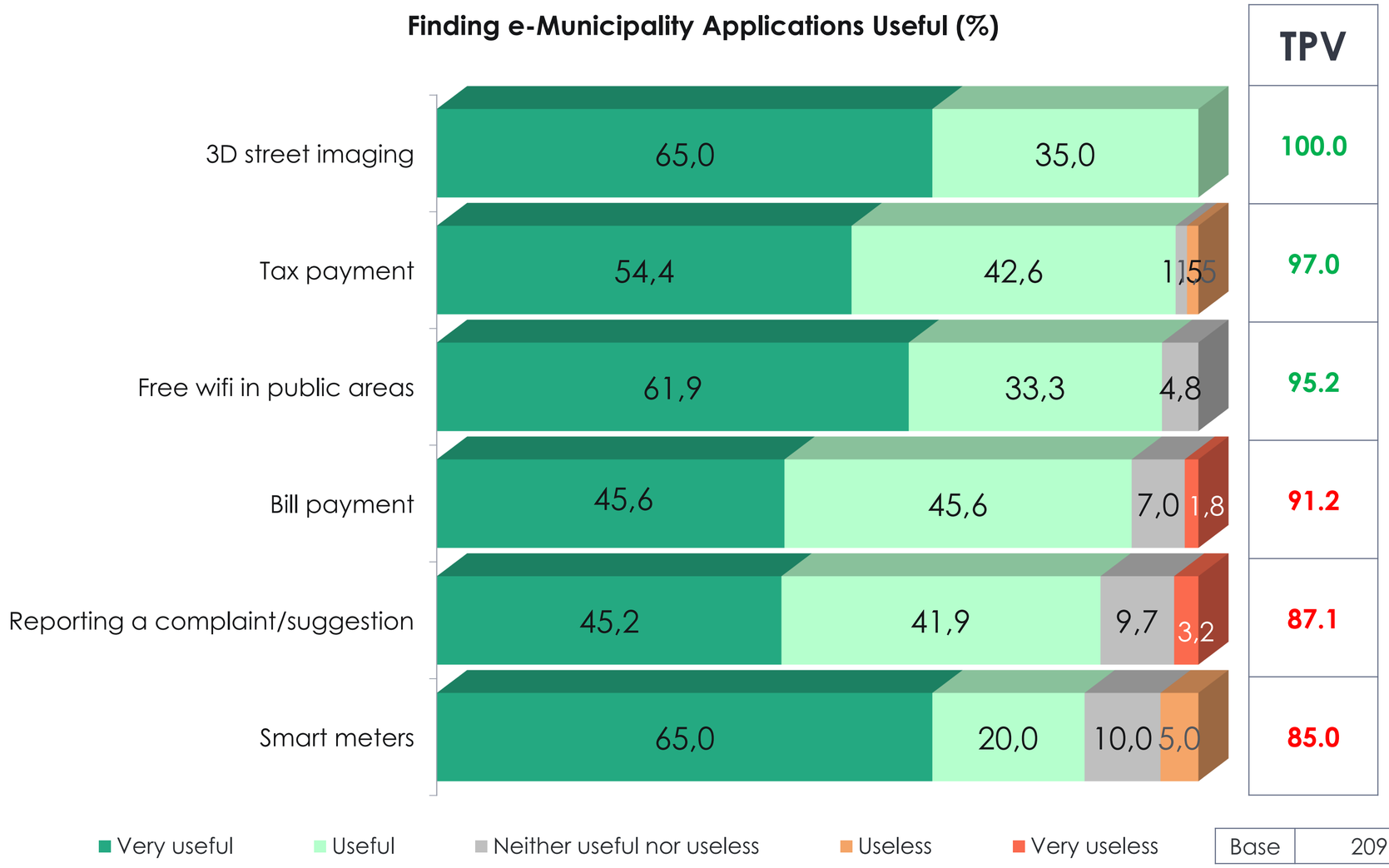
The e-Municipality usage rate is 34.8%. This rate rises to 39.0% in the 36-45 age group, to 38.1% in Istanbul, and to 52.2% in the B SES group.

According to participants, the ease of payment is the main action area of e-Municipality.

Base	209

Disaster and Digitalization Perception: Smart Cities

- How useful are the e-Municipality applications you use?



The most useful application is 3D street imaging.

TPV Average: 92.5

Below the TPV average

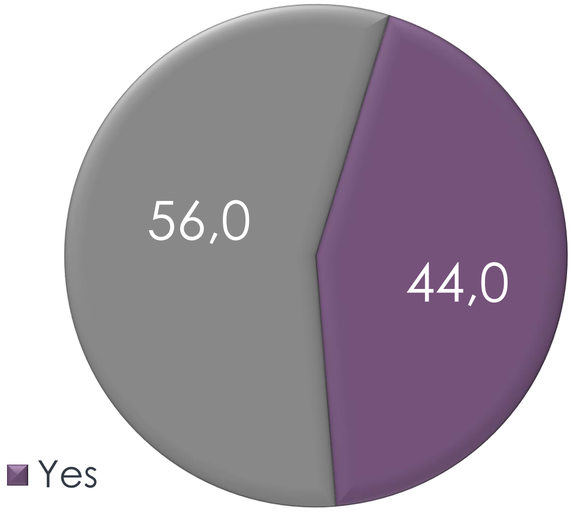
Above the TPV average

Disaster and Digitalization Perception: Smart Cities

- Is technology used in the management of your city?
- Which technologies are used?

44.0% of the participants stated that technology is used in the management of the city they live in. The most used technology is Transportation / Public transportation / Metro / Tram with 21.7%.

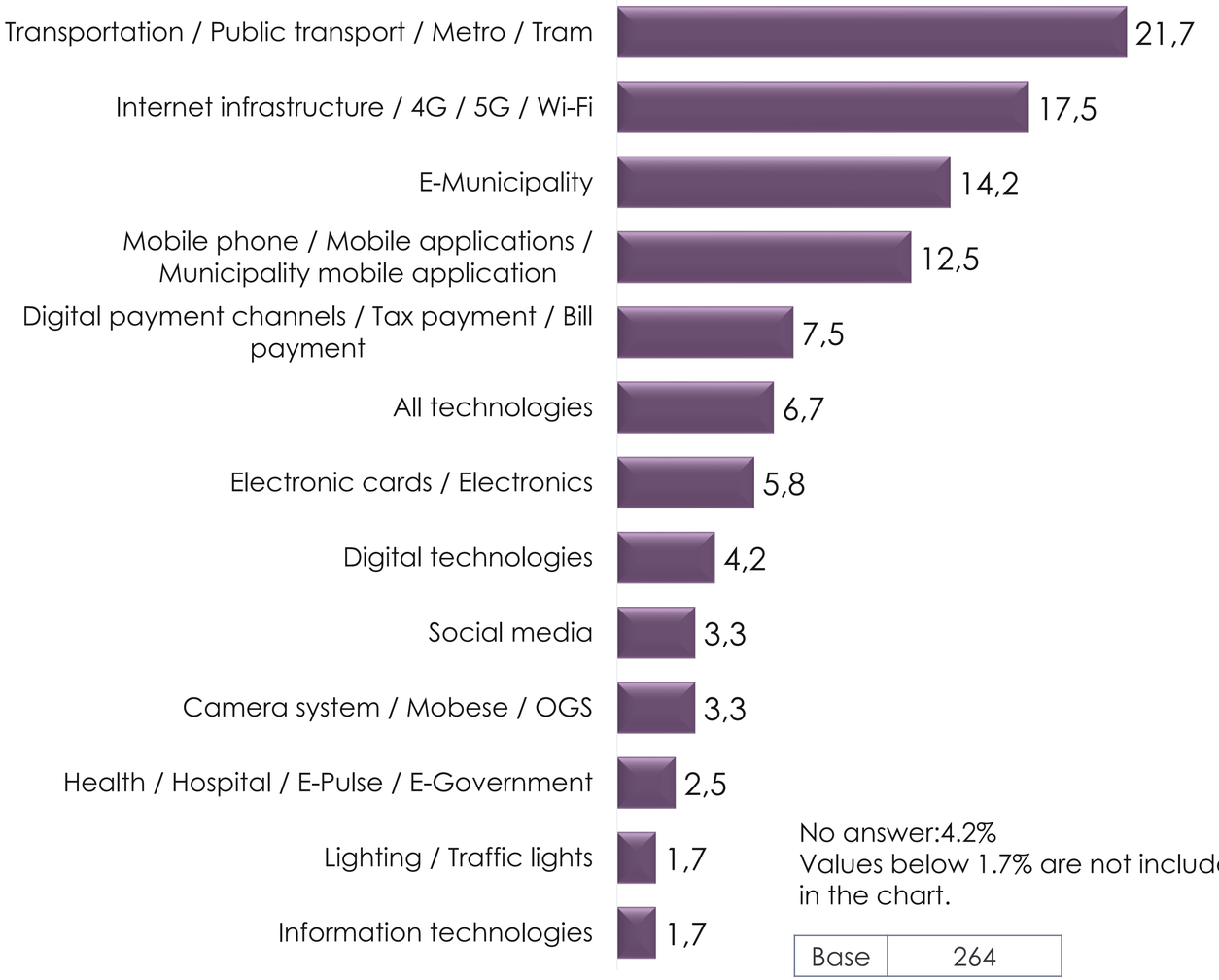
Technology Use in City Management (%)



Base	600

İstanbul	Ankara	İzmir
48.9	40.3	37.3

Used Technologies (%)



No answer:4.2%
Values below 1.7% are not included in the chart.

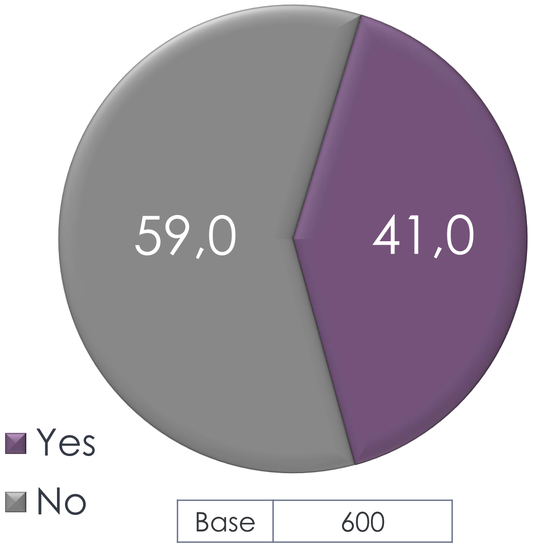
Base	264

Disaster and Digitalization Perception: Smart Cities

- Is technology used in the services provided in your city?
- Which technologies are used?

41.0% of the participants state that technology is used in the services provided in the city they live in. The most used technology is Internet infrastructure / 4G / 5G / Wi-Fi with 20.5%.

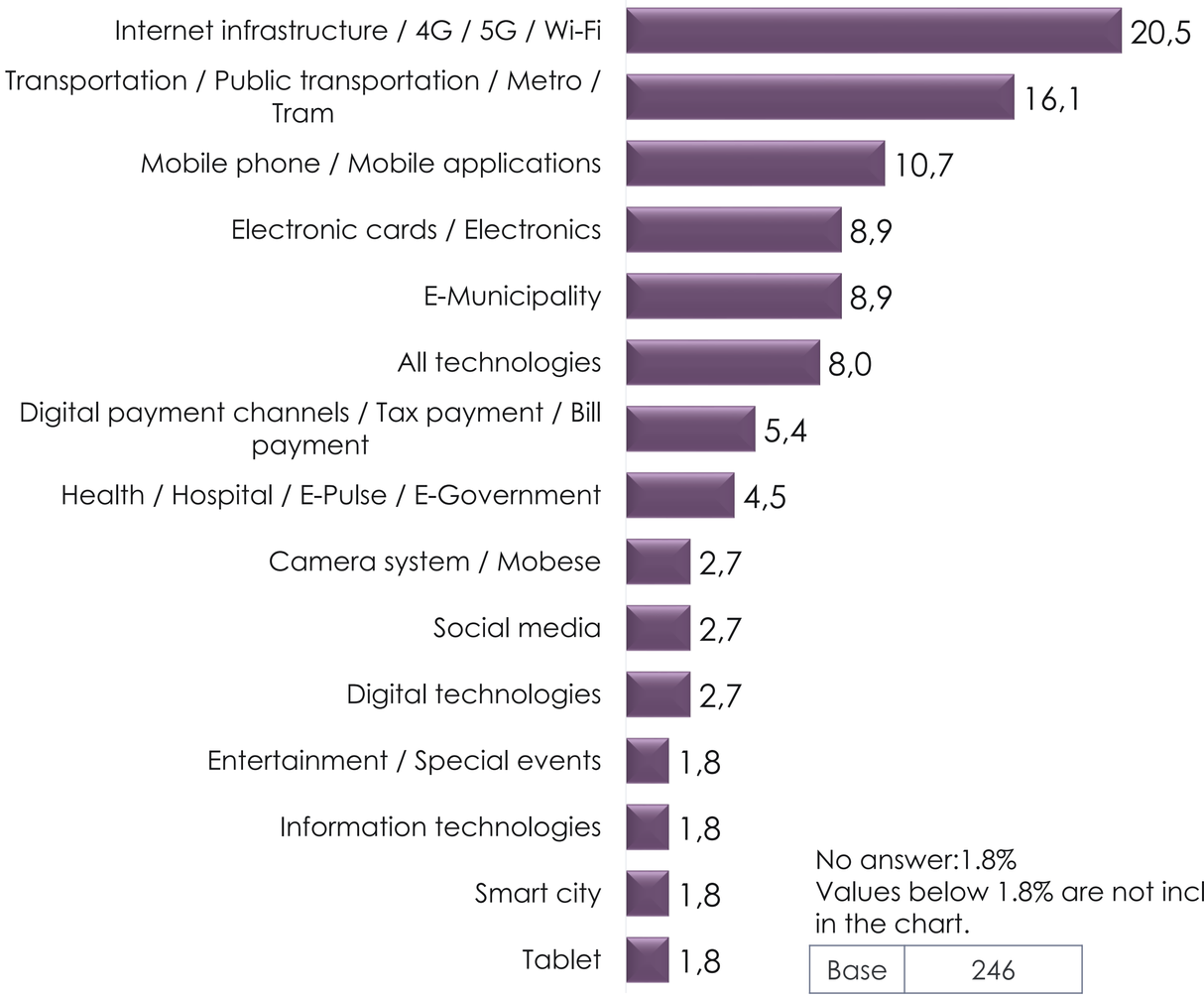
Technology Use in City Services (%)



Base	600

İstanbul	Ankara	İzmir
46.8	35.8	34.3

Used Technologies (%)



No answer:1.8%
Values below 1.8% are not included in the chart.

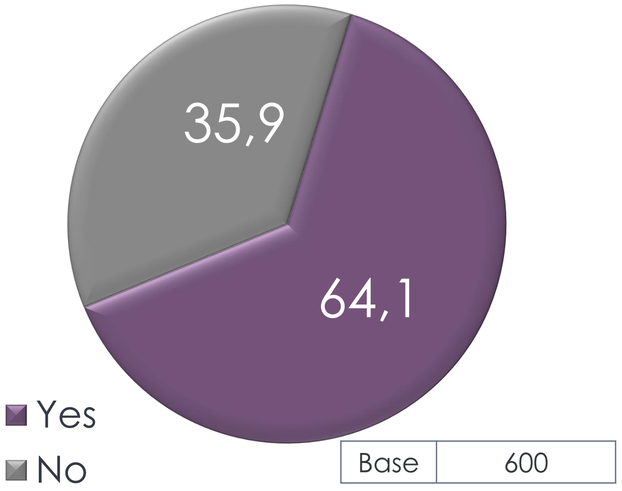
Base	246

Disaster and Digitalization Perception: Smart Cities

- Do you think that technology can be used to solve your city's problems?
- What problems can technology solve?

64.1% of the participants state that technology can be used to solve the problems of the city they live in. 85.7% indicate that technology can be a solution to transportation.

Finding Solutions to the Problems of the City with Technology (%)



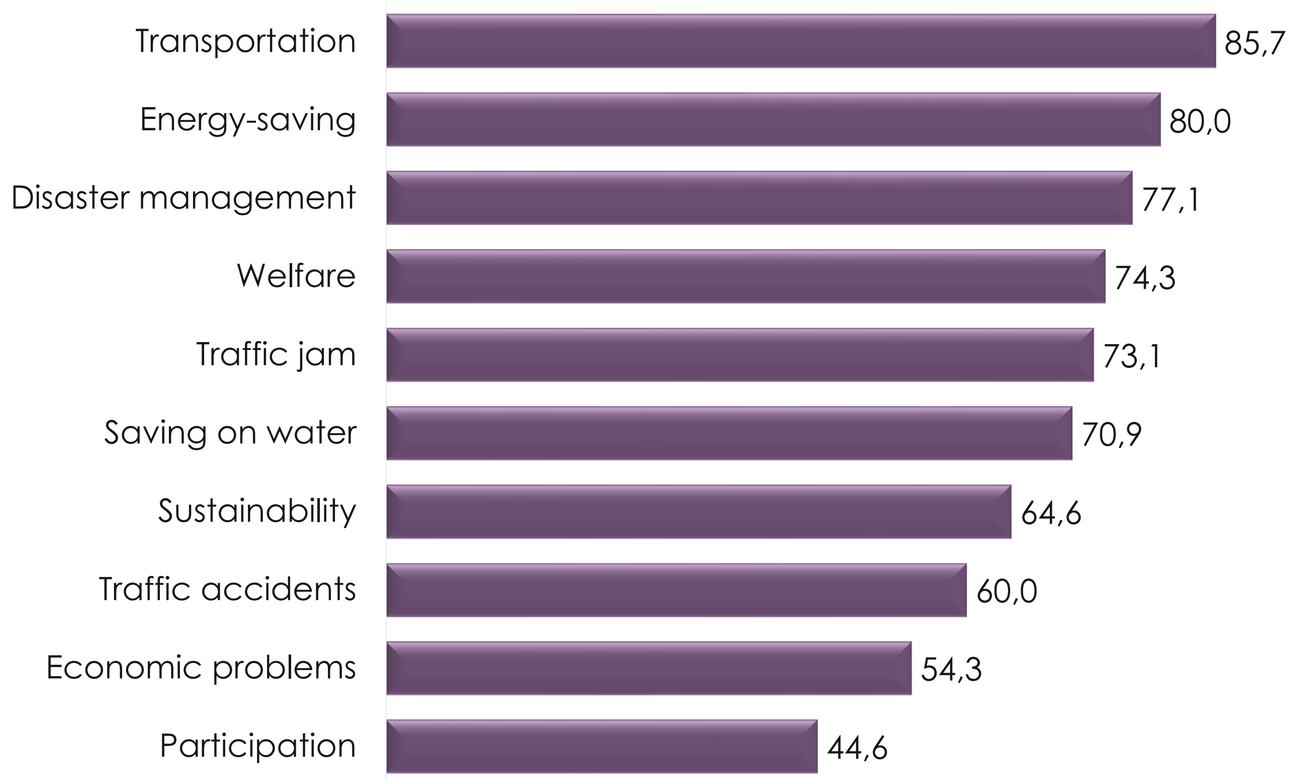
Base	600

18-25	26-35	36-45
62.6	70.1	68.3

İstanbul	Ankara	İzmir
71.2	58.2	55.2

A	B	C1	C2
86.0	71.1	52.3	46.5

Problems Considered That Technology Can Solve (%)

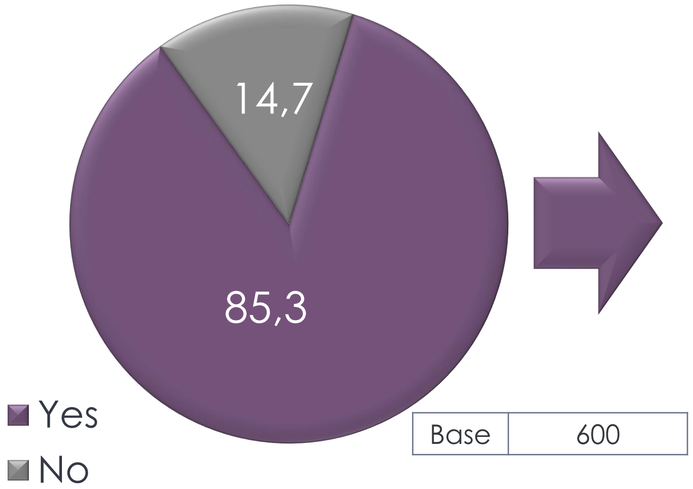


Base	385

Disaster and Digitalization Perception: Smart Cities

- Do you think technology can be used in disaster situations such as earthquakes?
- Would you please specify your reasons?

Thinking that Technology Can Be Used in Disaster Situations (%)



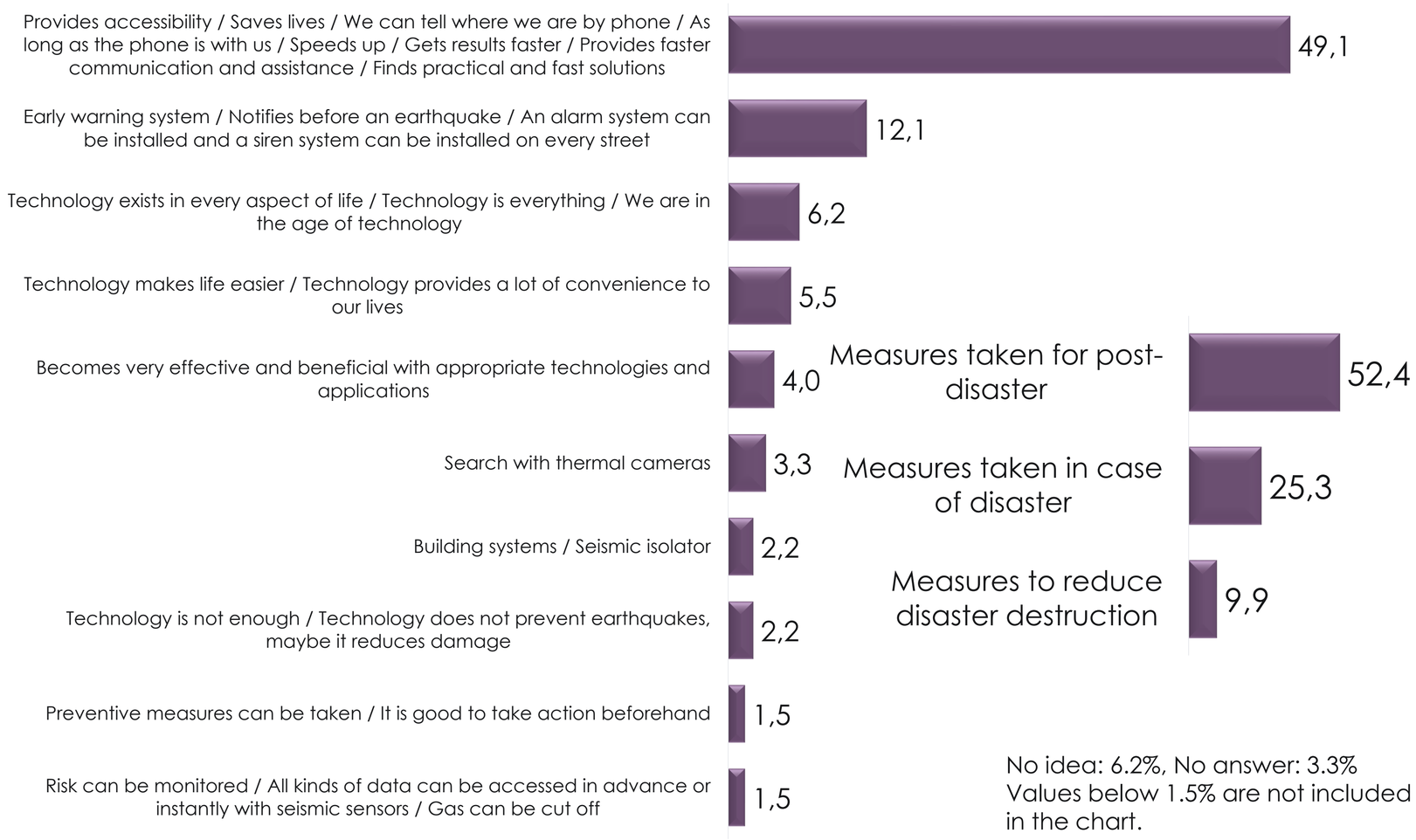
Base	600

18-25	26-35	36-45
86.8	84.5	87.8

İstanbul	Ankara	İzmir
86.3	83.6	85.1

A	B	C1	C2
86.0	71.7	52.3	46.5

Reasons to Think It May Be Useful (%)



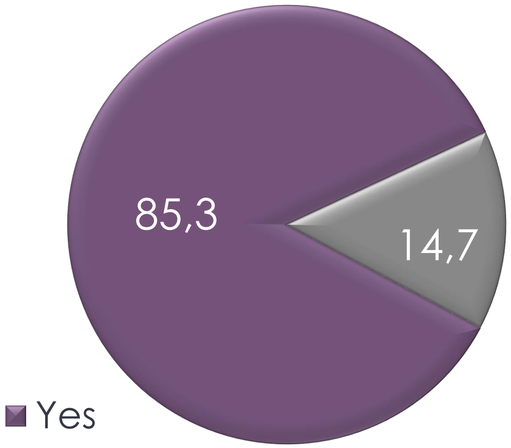
No idea: 6.2%, No answer: 3.3%
Values below 1.5% are not included in the chart.

Base	512

Disaster and Digitalization Perception: Smart Cities

- Do you think technology can be used in disaster situations such as earthquakes?
- Would you please specify your reasons?

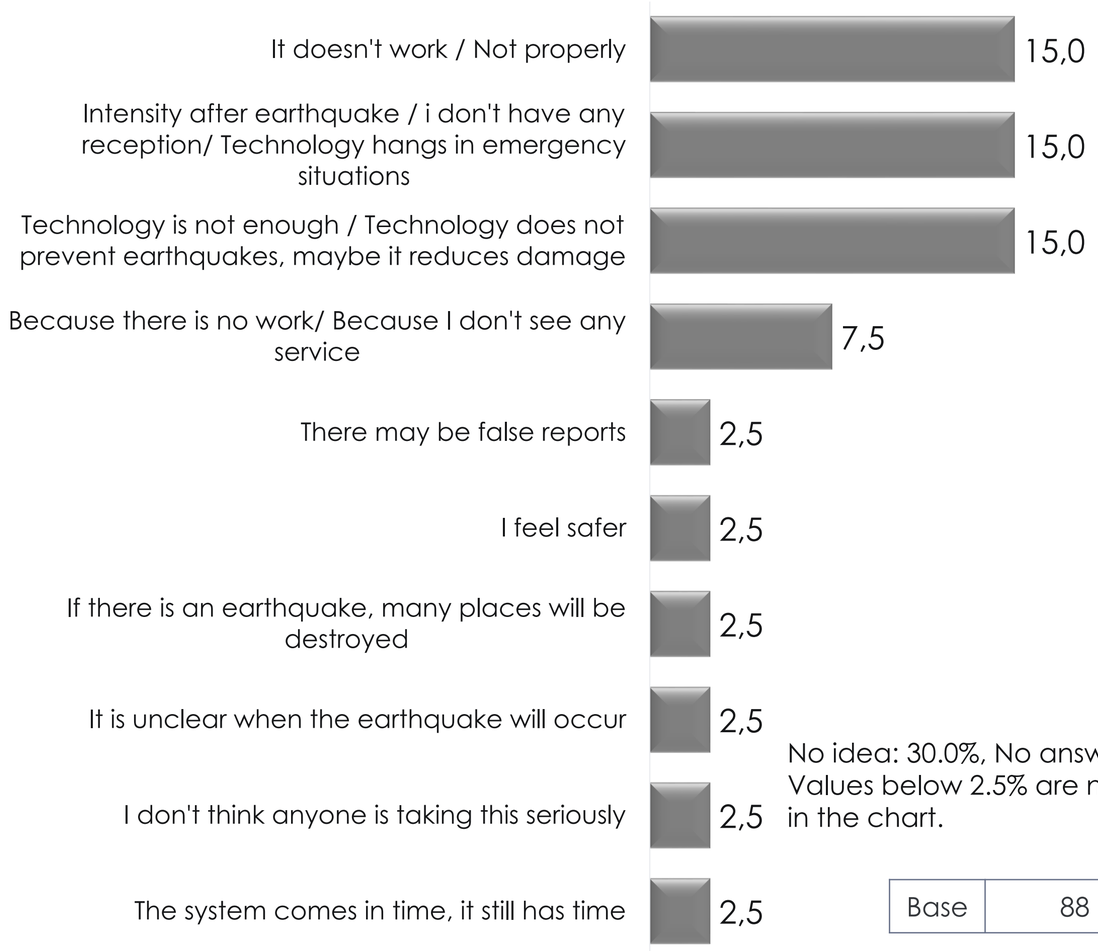
Thinking that Technology Can Be Used in Disaster Situations (%)



Base	600

İstanbul	Ankara	İzmir
86.5	86.5	84.6

Reasons to Think It May Not Be Useful (%)



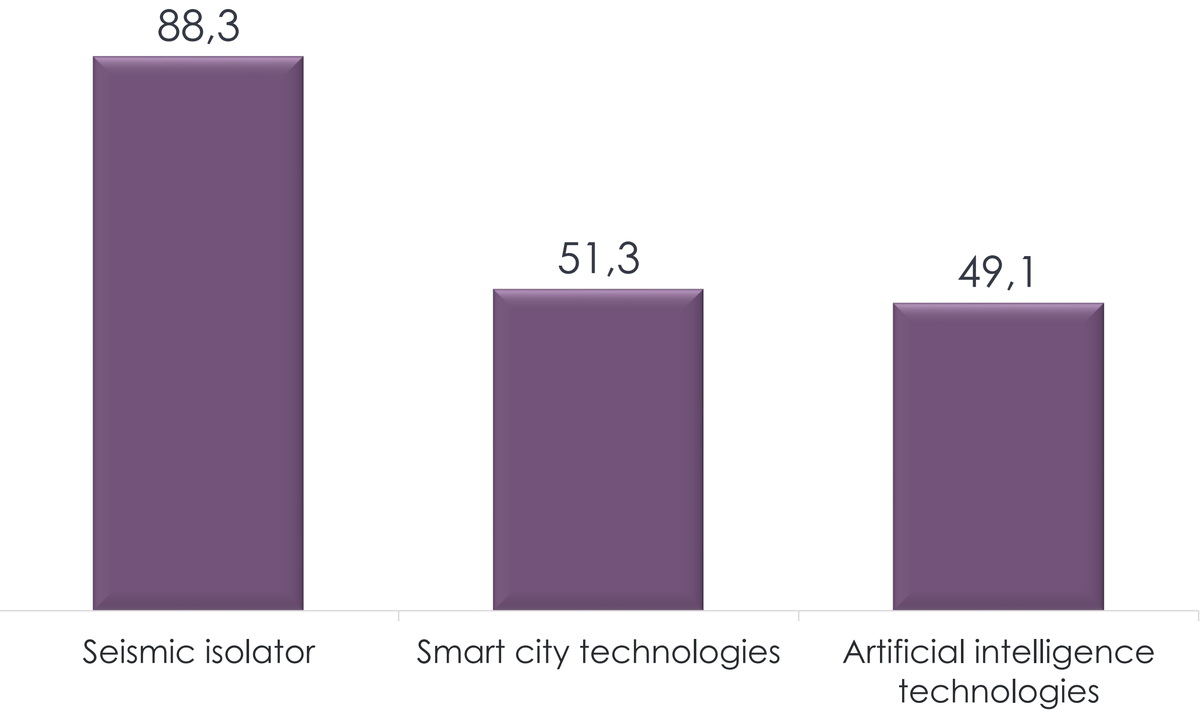
No idea: 30.0%, No answer: 2.5%
Values below 2.5% are not included in the chart.

Base	88

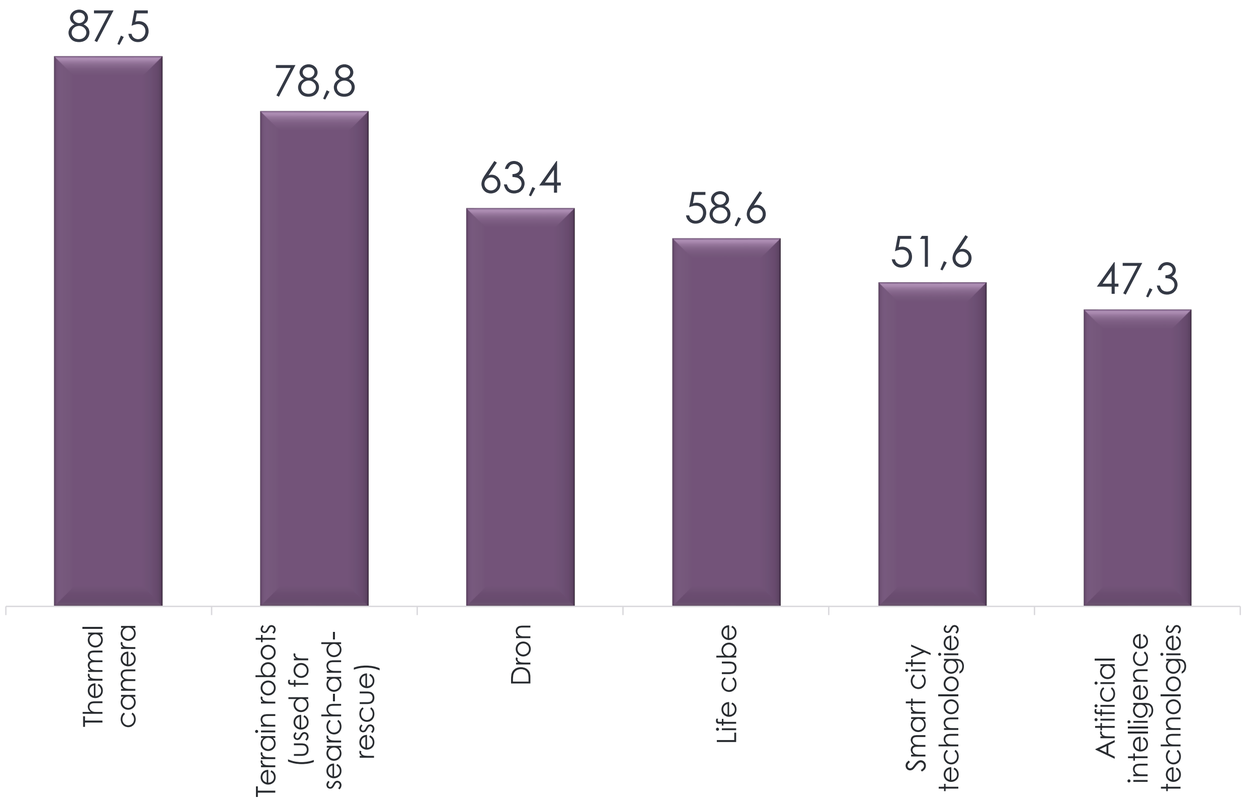
Disaster and Digitalization Perception: Smart Cities

- Which of the following technologies do you think will be useful before an earthquake?
- Which of the following technologies do you think will be useful after the earthquake?

Technologies Considered to be Useful Before the Earthquake (%)



Technologies Considered to be Useful After the Earthquake (%)



Base	600

$$Arf(q) = \sum_{i=1}^{n} q(a_i)\, q(b_i) \in Z_2$$

$$a_i , b_i \quad i = 1, 2, 3, \ldots\ldots, n.$$

Ord. Prof. Dr. Cahit Arf
Atatürk University
1958-1959 Academic Year Public Conferences
Can a machine think and how can it think?