

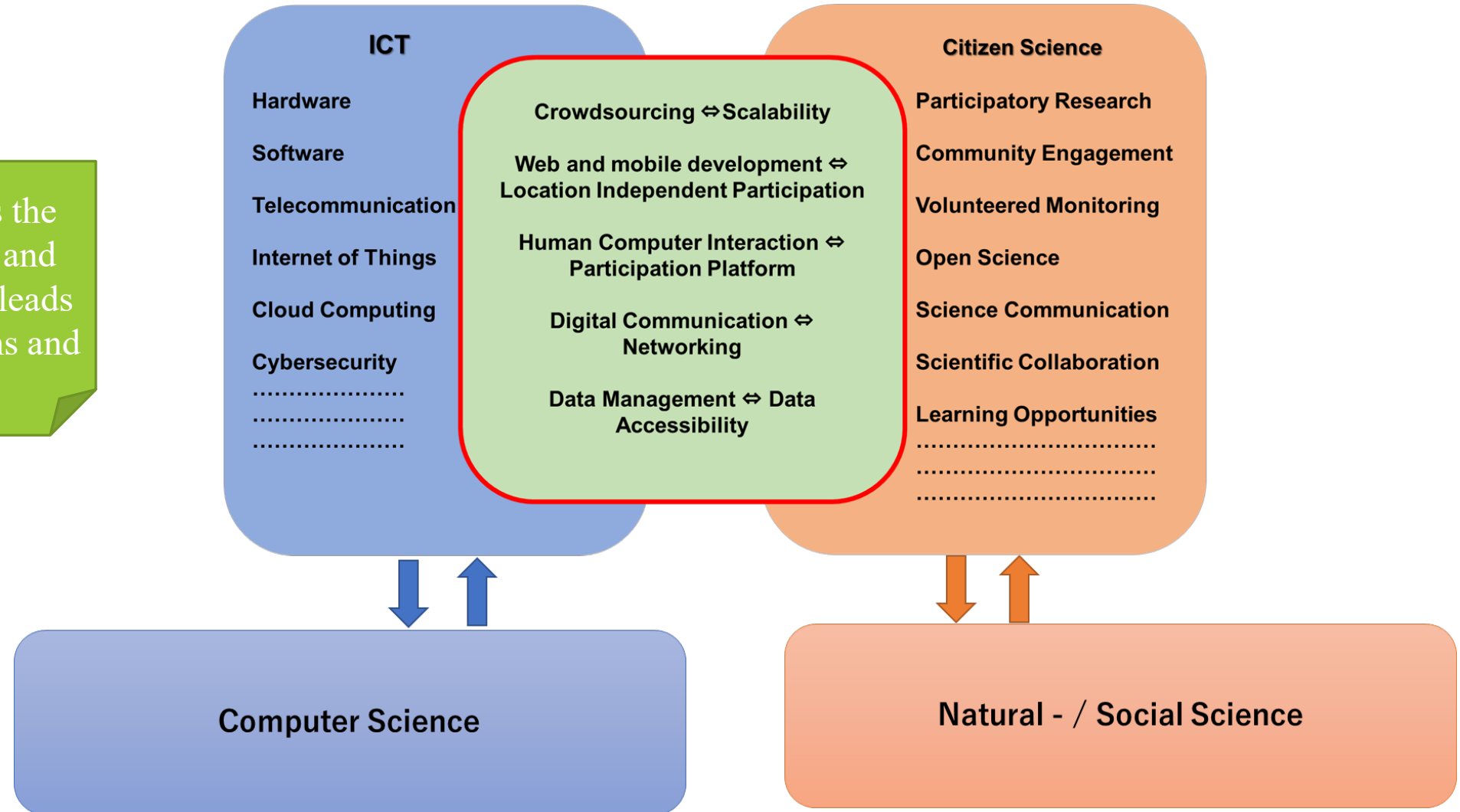
# Exploring the Awareness of Mongolia's Young Generation on ICT-Supported Citizen Science and Its Potential

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# ICT-supported Citizen Science

Computer science brings the foundational knowledge and technical framework that leads to the systems, applications and tools used in ICT.



# Mongolia



- One of the world's most sparsely populated countries
- Its vast land mass is underpopulated
  - Population concentration in urban areas
  - Harsh weather conditions in many other areas
- Increasing environmental challenges
  - Climate change
  - Extreme events
  - Air and water pollution

# Mongolia



- Monitoring Mongolia's vast and diverse landscape is a major challenge, both logistically and financially.
- Approximately 83% of individuals use the internet (International Telecommunication Union, 2024).
- Over 90% own a mobile phone (International Telecommunication Union, 2024).

# Aim of This Research

- Investigate the current status and attitudes toward citizen science in communities where information about citizen science is scarce.
- Gather direct insights into the interests of local communities.
- Explore desirable ICT methods and tools that can effectively support the expansion of citizen science.

# Methods

- Online survey was conducted in October 2024 among Bachelor's students at Mongolian University of Science and Technology.
- The form began with a brief introduction to the concept of citizen science, highlighting its benefits for both researchers and participants, and explaining how web technologies enable participation from any location.
- The background information, questions, and answer choices were provided in both Mongolian and English, minimizing any potential language barriers.

# Questionnaire Design

## **General (Questions 1-3):**

Overall perceptions and attitudes toward environmental and social challenges

## **Awareness (Questions 4-6):**

Awareness of citizen science and related platforms

## **Engagement (Question 7):**

Experiences with active participation in citizen science projects

## **Future Interest (Questions 8-9):**

Potential involvement in citizen science and their preferred areas

## **Use of Web Technologies (Questions 10-13):**

Technical insights relevant to the development of future citizen science applications

# Participants

- A total of 171 students participated from different years of university (from freshman to senior)
- 64% identifying as female and 36% as male
- Students had various majors: Engineering (37.4%), Social Sciences (59.6%), and Natural Sciences (3.0%).



# Results - General

General 1. How do you generally learn about environmental or social challenges?

- Websites 43.9%
- Social media 78.4%
- School programs 32.7%
- Public events 15.2%

General 2. Do you participate in activities related to environmental monitoring or social challenges?

- Hobby 21.6%
- Research projects 34.5%
- No participation 48.0%

General 3. What devices do you use most often to gain new information in general?

- Mobile phone 93.6%
- Tablet 8.8%
- Computer 39.2%
- Others (TV) 0.6%

# Results - Awareness

Awareness 4. Have you heard about the term "citizen science" prior to this survey?

Yes 38.6%

No 61.4%

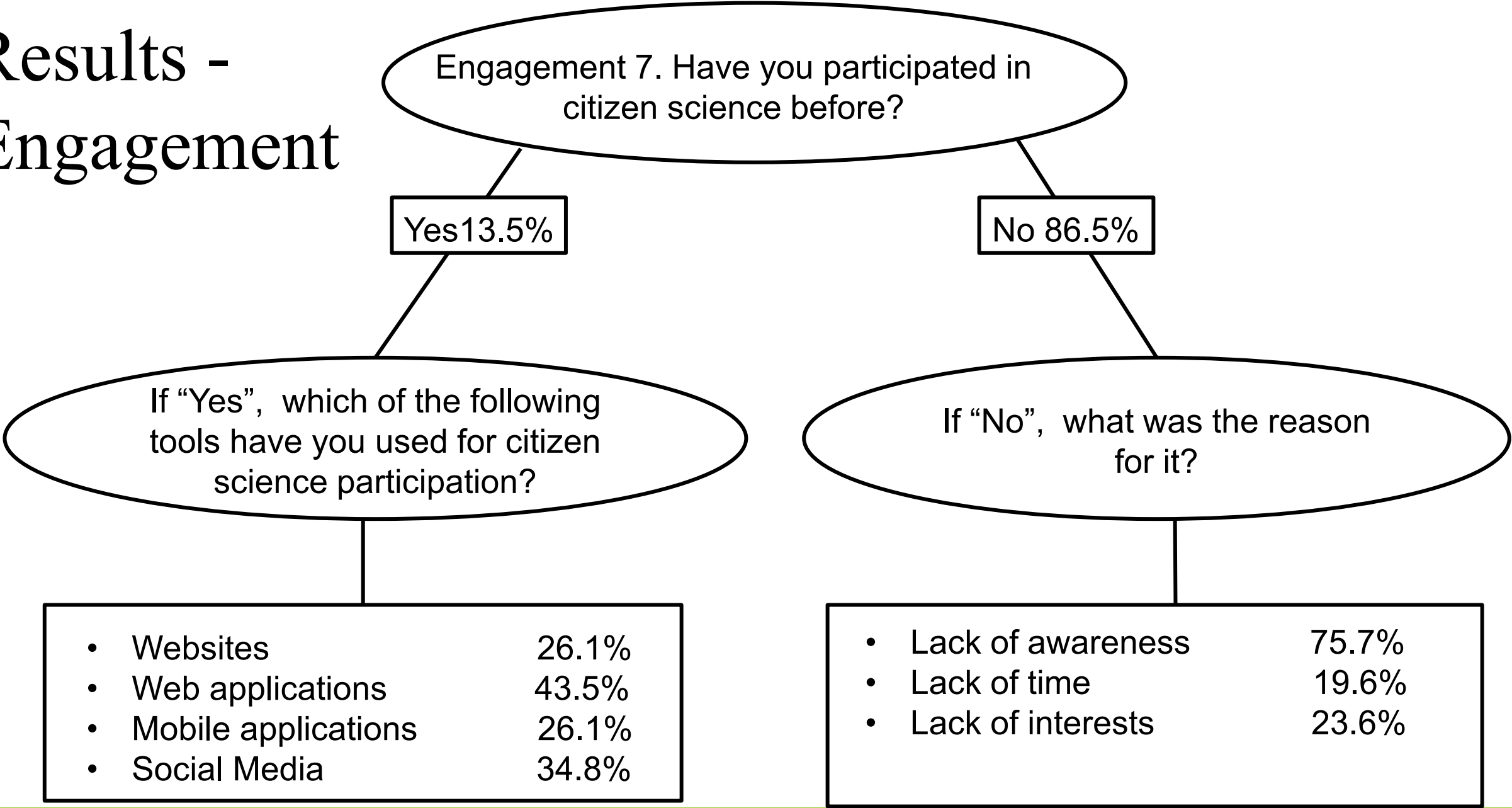
Awareness 5. Do you know any citizen science platforms / applications?

- iNaturalist 19.3%
- SciStarter 11.1%
- Zooniverse 12.3%
- eBird 22.8%

Awareness 6. Which of the tools are more important to improve the awareness of citizen science in your opinion?

- Websites 31.6%
- Social media 56.7%
- School programs 50.3%
- Public events 50.3%

# Results - Engagement



# Results - Future Interest

Future Interest 8. Would you be interested in participating in citizen science in the future?

Yes 39.2%

Maybe 59.6%

No 1.2%

Future Interest 9. Which topics / areas of research are you interested in?

- |                           |       |                       |       |
|---------------------------|-------|-----------------------|-------|
| • Climate and weather     | 29.8% | • Culture and history | 32.7% |
| • Environmental pollution | 22.8% | • Health              | 25.7% |
| • Nature observation      | 32.7% | • Astronomy           | 32.2% |
| • Society                 | 40.4% | • New technologies    | 22.8% |

# Results - Use of Web Technologies

Use of Web Technologies 10.  
What is your preferred method for participating in citizen science?

• Websites	36.8%
• Web applications	25.7%
• Mobile applications	27.5%
• Social Media	41.5%
• In-person events	39.2%

Use of Web Technologies 11.  
How important is having a mobile application for your participation in citizen science?

• Very important	26.3%
• Important	64.9%
• Less important	8.8%

Use of Web Technologies 12.  
What key functionalities do you find most desirable in web- and mobile applications for citizen science?

- Interactive mapping for data visualization and analysis 36.3%
- Other data visualization and analysis tools (graphs and charts) 38.6%
- Offline data collection capabilities 45.0%
- Data access and download options for further analysis 26.3%

Use of Web Technologies 13.  
Which additional features would enhance your experience in web- and mobile applications for citizen science?

- Educational resources and tutorials 43.3%
- Gamification elements 14.0%
- Discussion forums 28.1%
- Data validation and feedback mechanisms by researchers and other participants 34.5%
- Shared project progress tracking and timelines 26.9%
- Participants-driven project idealization and proposal systems 28.1%

# Findings

- ICT-supported citizen science for Mongolia needs to take into account:
  - **Social media and mobile phones** are key channels for accessing new information.
  - **Active promotion of projects** such as through social media, university programs, and public events is essential, to help raise awareness among individuals who may not have been familiar with such initiatives so far.
  - **Educational materials and data validation / feedback mechanisms** are preferred features.
  - **Offline capability** is considered particularly important, as it would minimize mobile internet consumption and mitigate the impact of sporadic Wi-Fi connections.

Thank you for your attention!

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