

The background of the entire page is a dark blue gradient with wavy, ripple-like patterns that resemble water or ocean waves. The text is centered in white.

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**SURVEY RESULTS**

# SURVEY RESULTS

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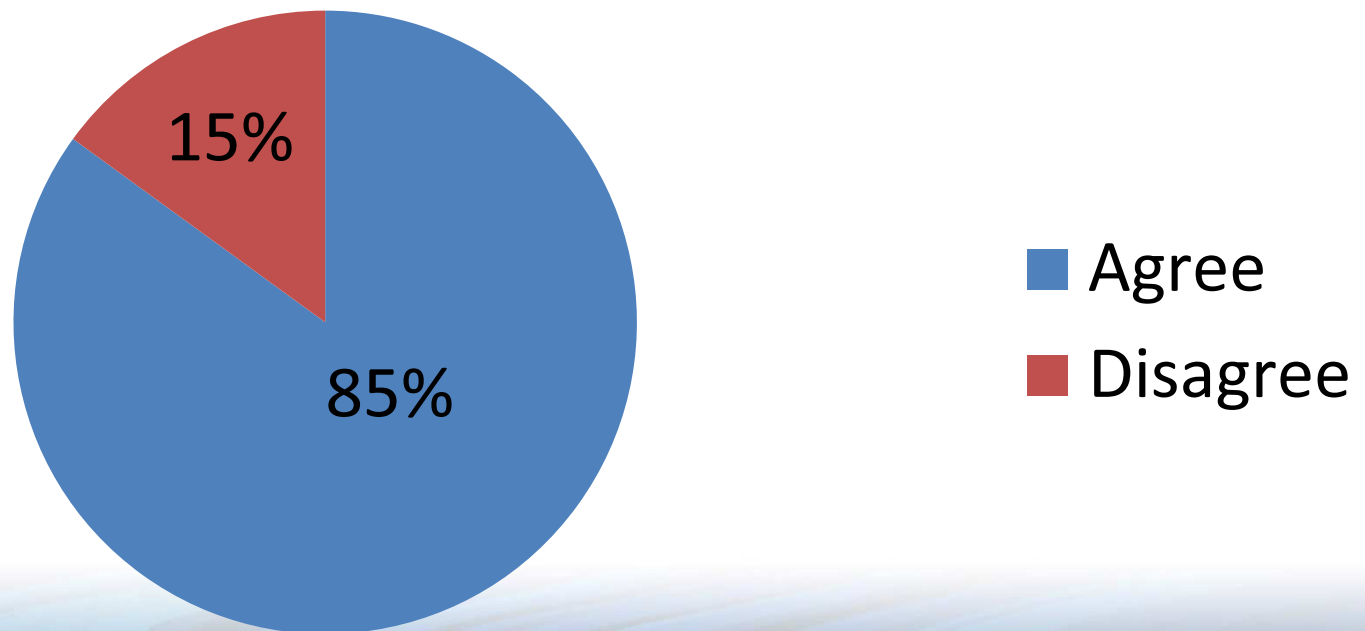
- Thank you for the high response rate for the surveys. We appreciate the rich content you provided in your comments. The survey results will be of great value in Ocean Exploration 2020 discussions and in the development of a national ocean exploration program.
- We collected data in a variety of ways so the results are presented in varying formats depending on the data. We've done our best to display results for different kinds of data consistently across the themes.
- Of necessity we made judgment calls about how to treat the comments. Most often we have provided a few illustrative comments, or a description of similar comments.

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# EXPLORATION PRIORITIES

## Survey Results

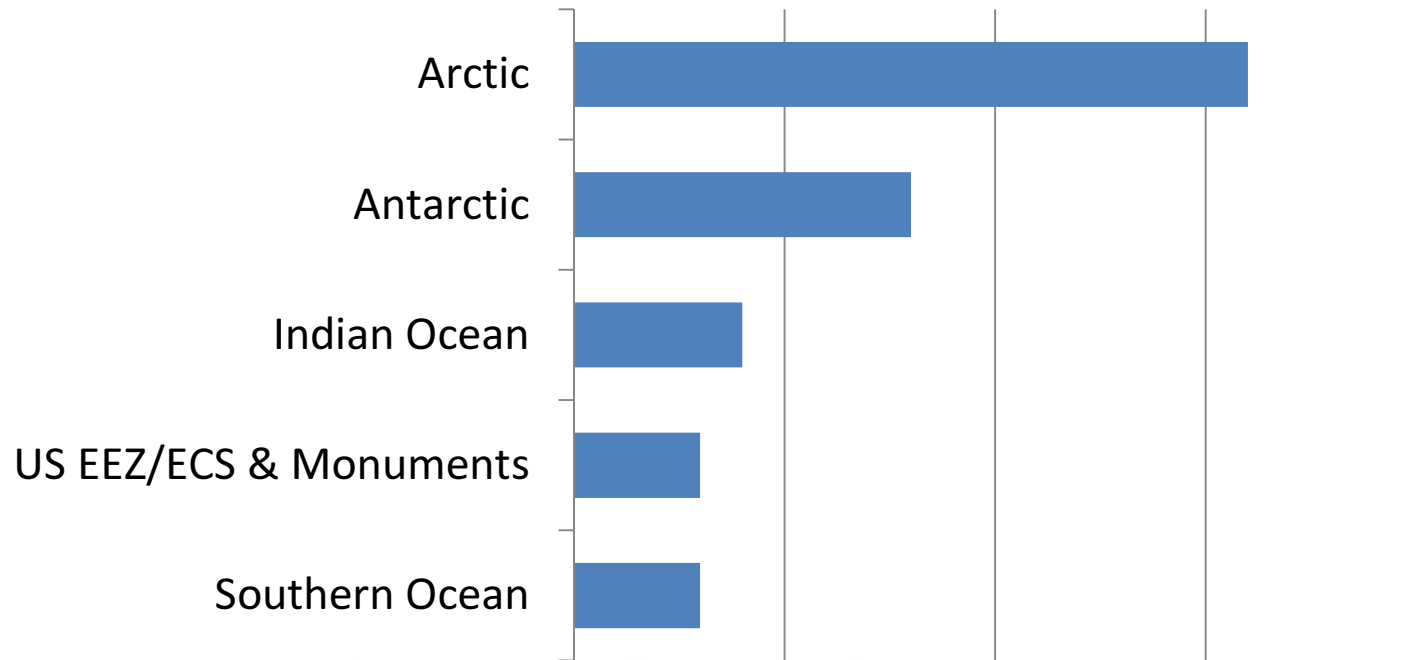
***Agree or Disagree: Priorities for exploring geographic areas of the global ocean are driven by the ocean exploration community.***



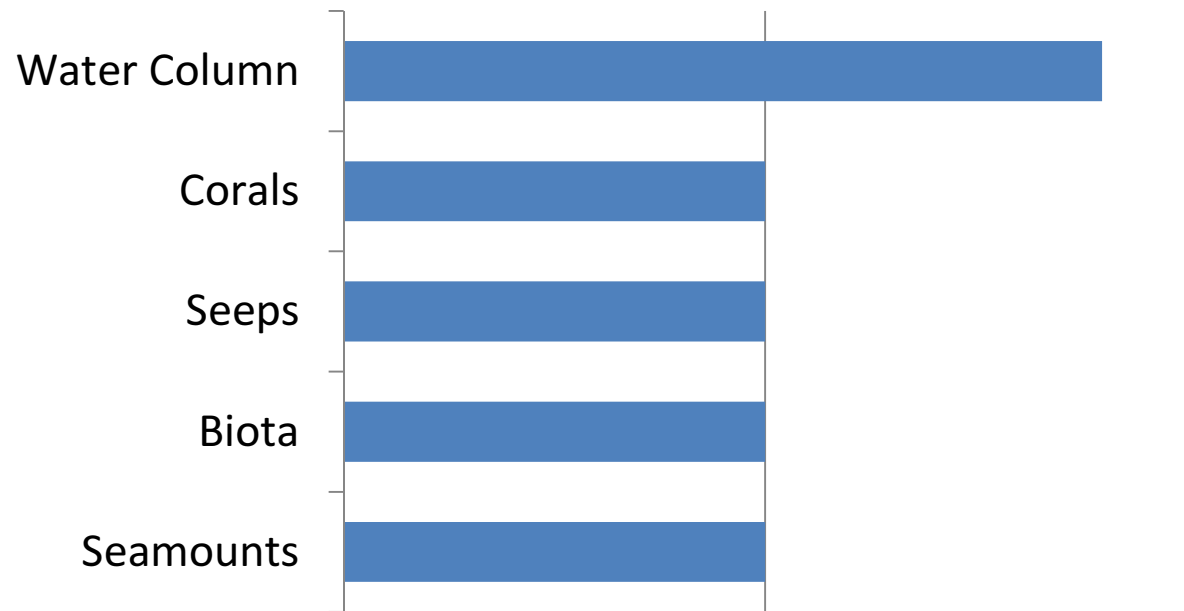
## What is the best mechanism for collecting community input?



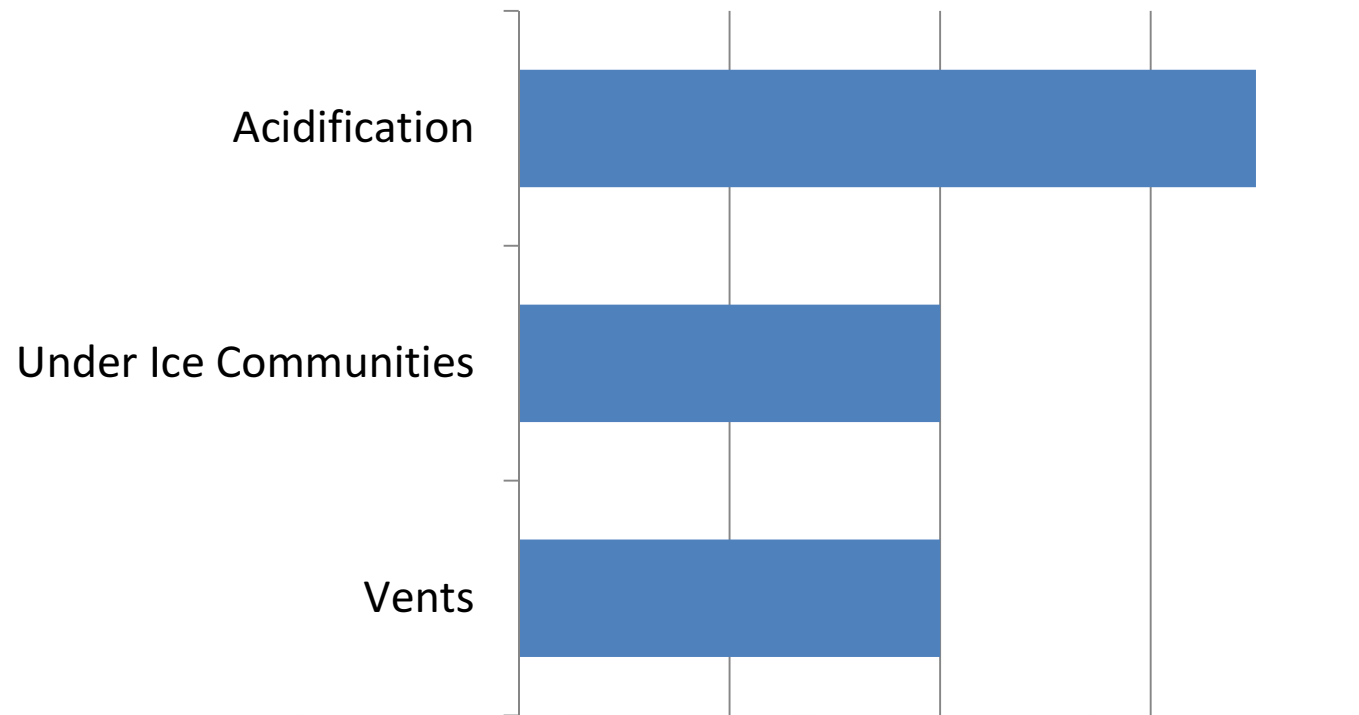
## What are the five most important geographic areas to explore?



## What are the five most important classes of features of the ocean environment to explore?

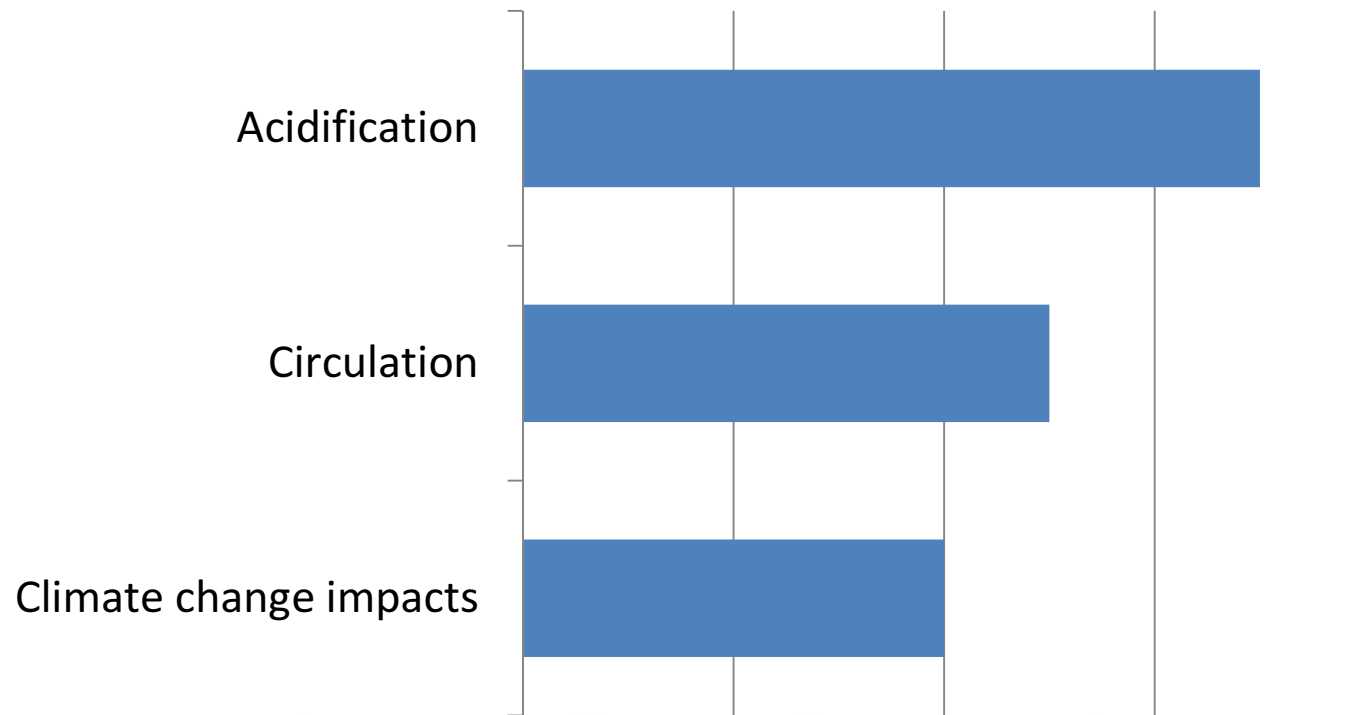


## What are the three most important phenomena to explore?

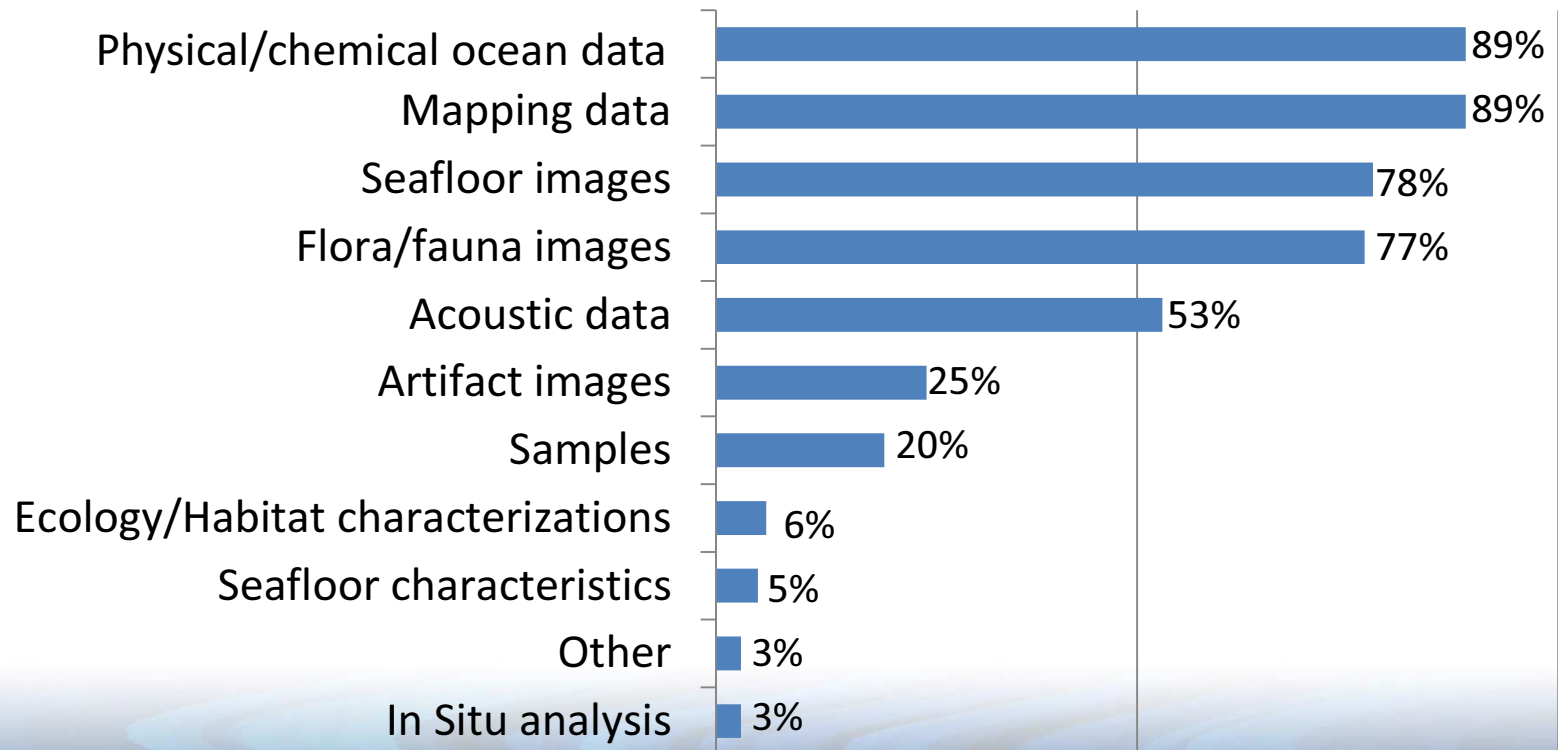




## What are the three most important processes to explore?



## What data should be collected so that important areas/phenomena will be noted as explored? (check all that apply)

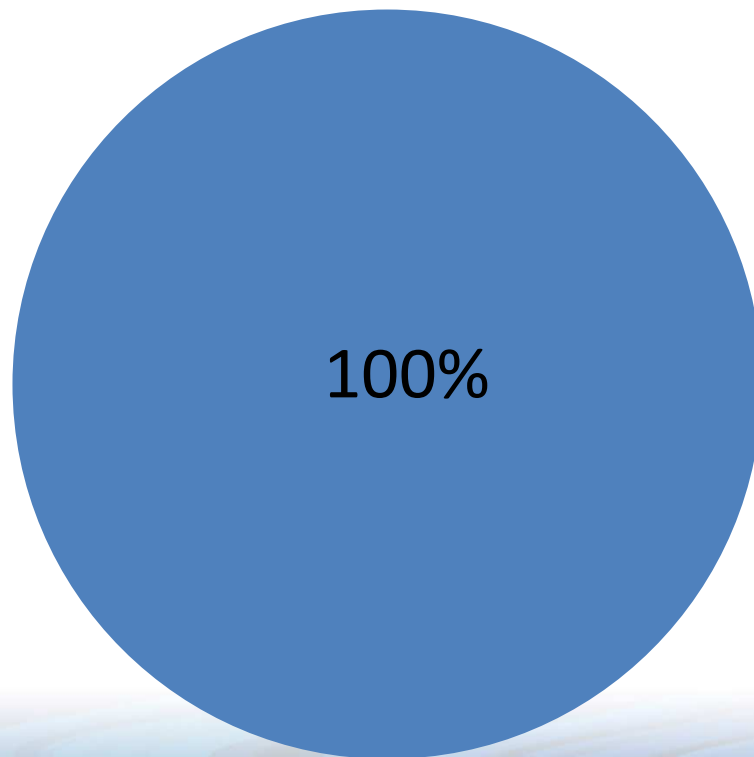


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# PARTNERSHIPS & FUNDING

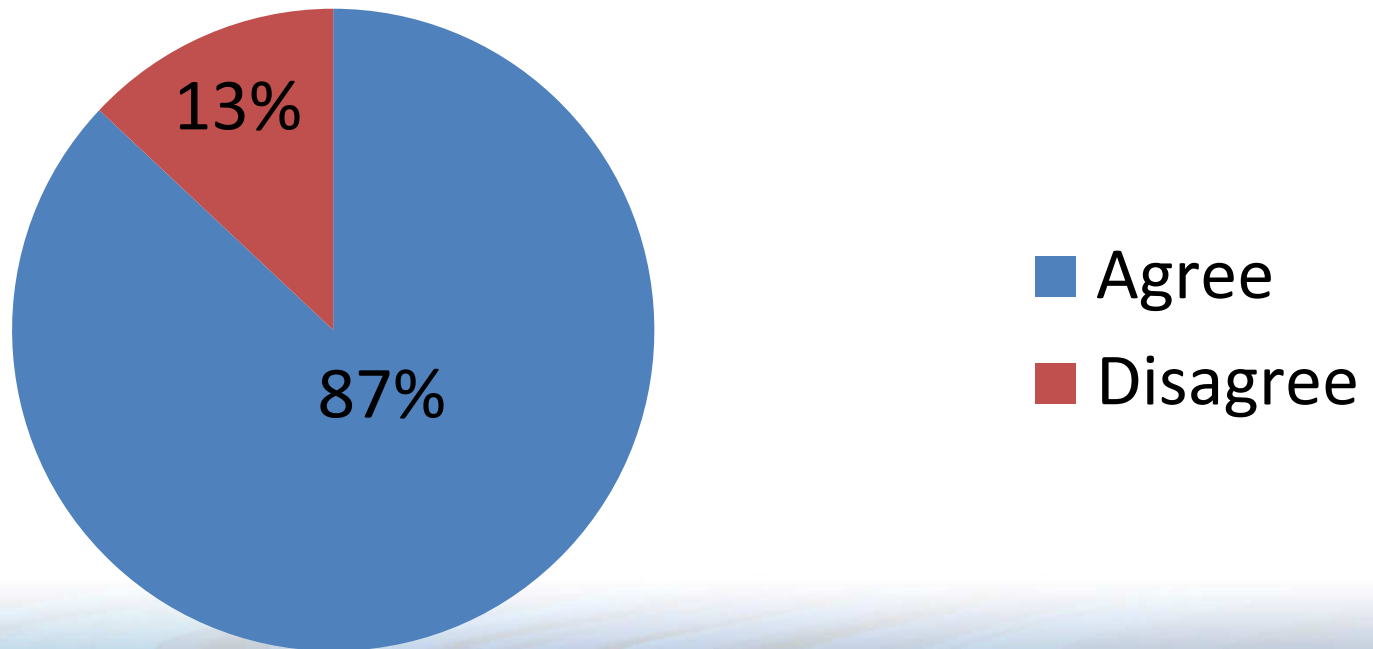
## Survey Results

***Agree or Disagree: Leverage gained by partnerships is critical to ocean exploration.***

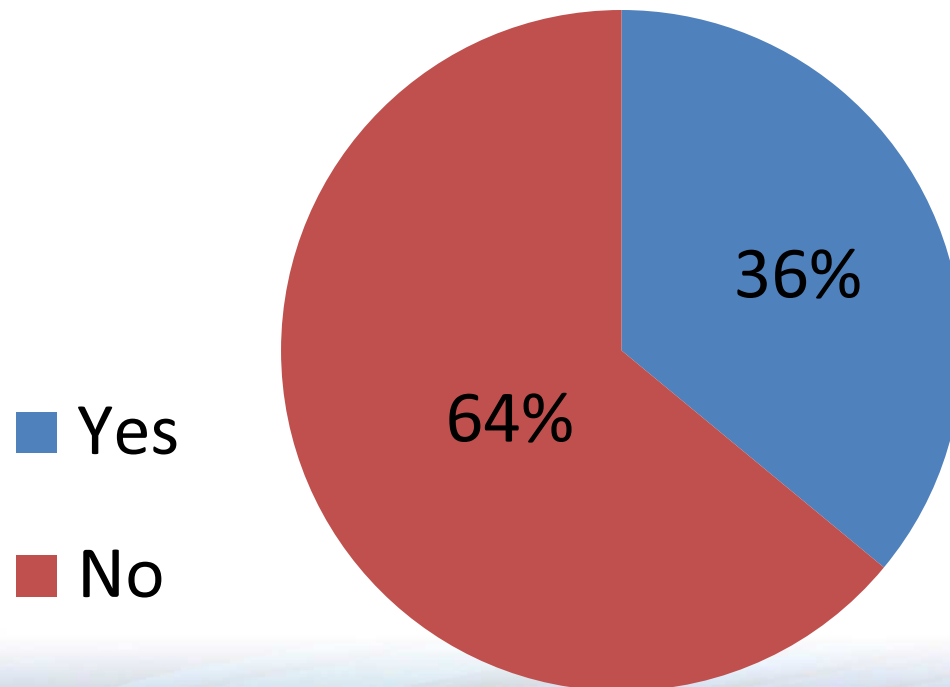


- Agree
- Disagree

***Agree or Disagree:* Partnerships between agencies and private sector entities is crucial for ocean exploration.**

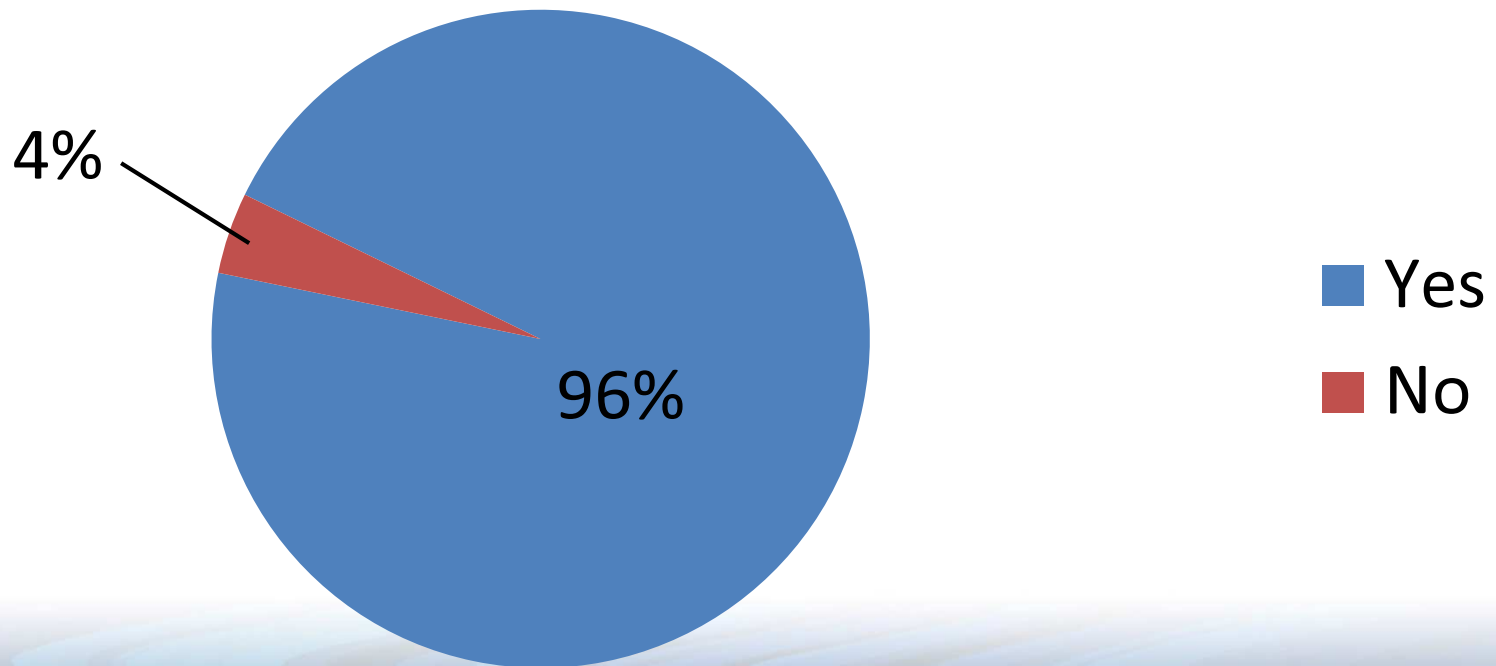


## Should a single federal agency be responsible for expeditions?



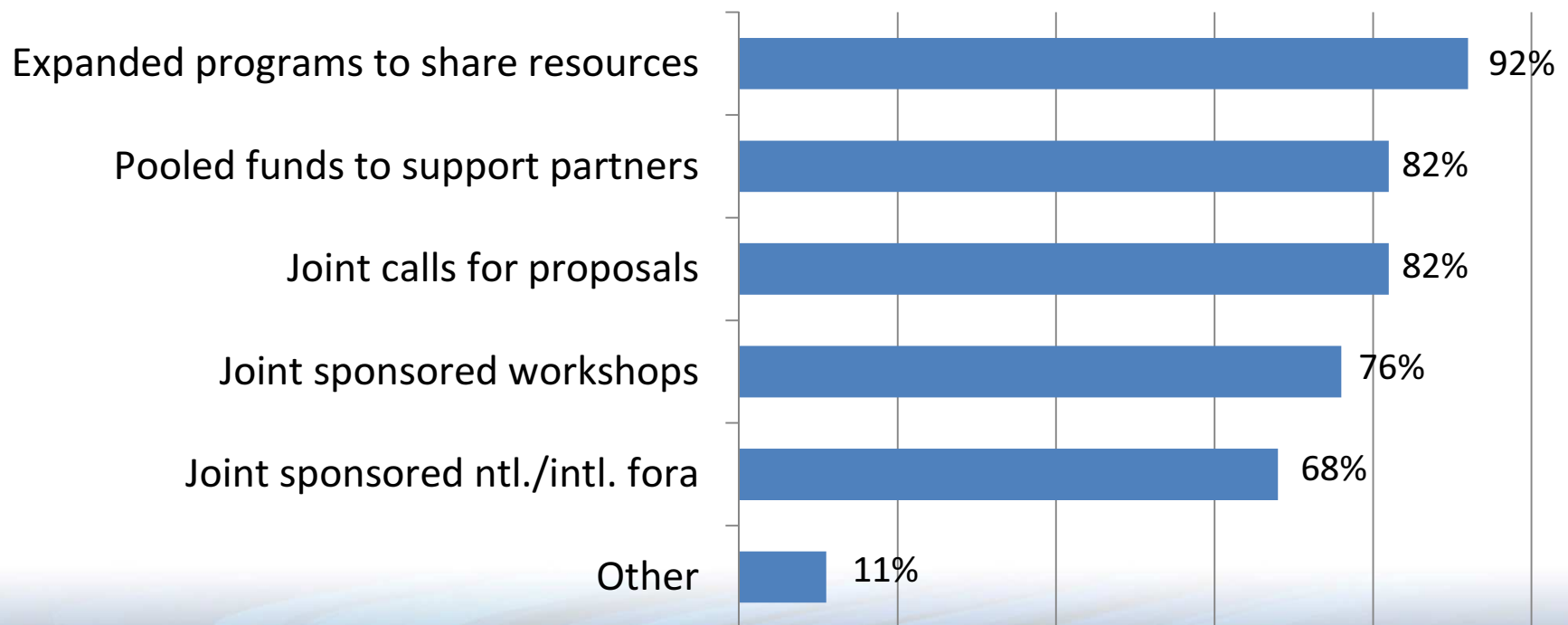
- Organization collaboration is key.
- Umbrella agency would be ideal.

**Should a national program include mechanisms to encourage federal agency collaboration?**



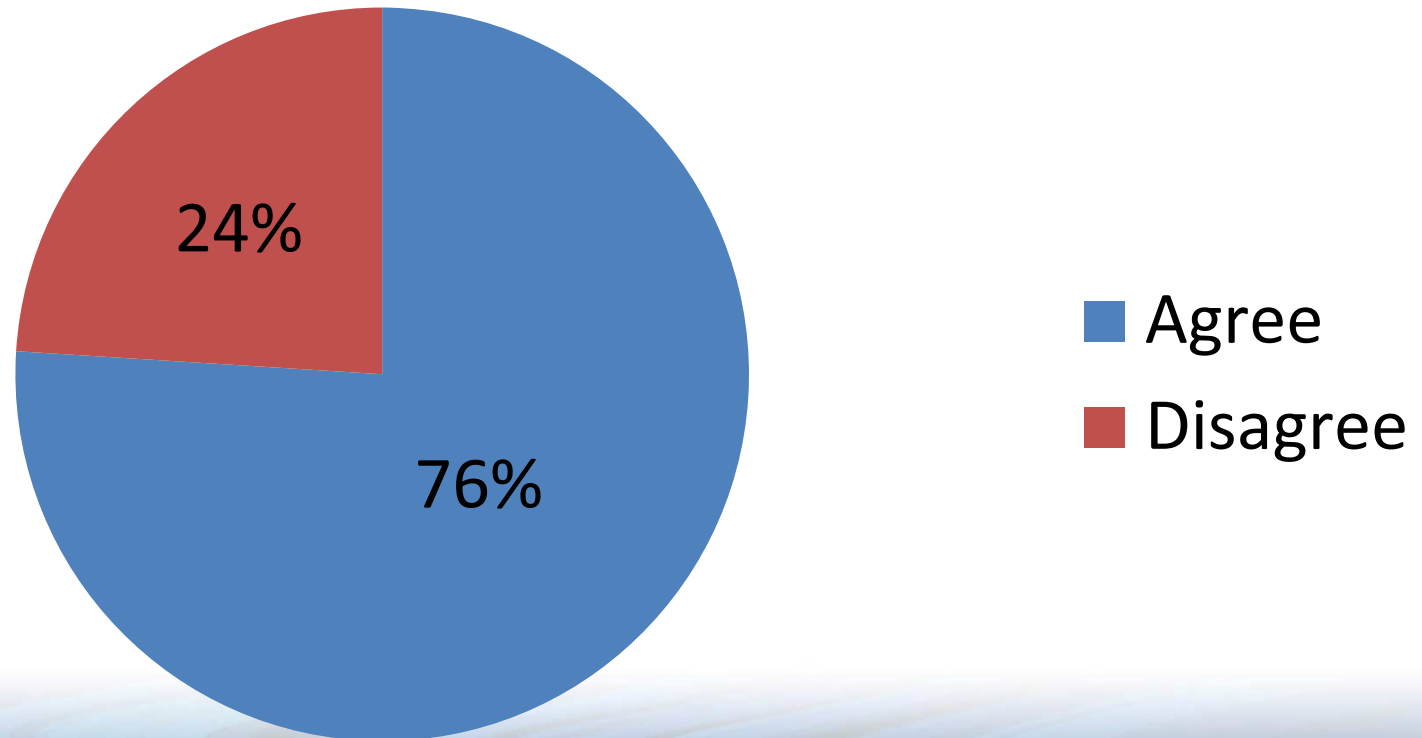
## How can federal agencies best support effective ocean exploration partnerships?

(check all that apply)

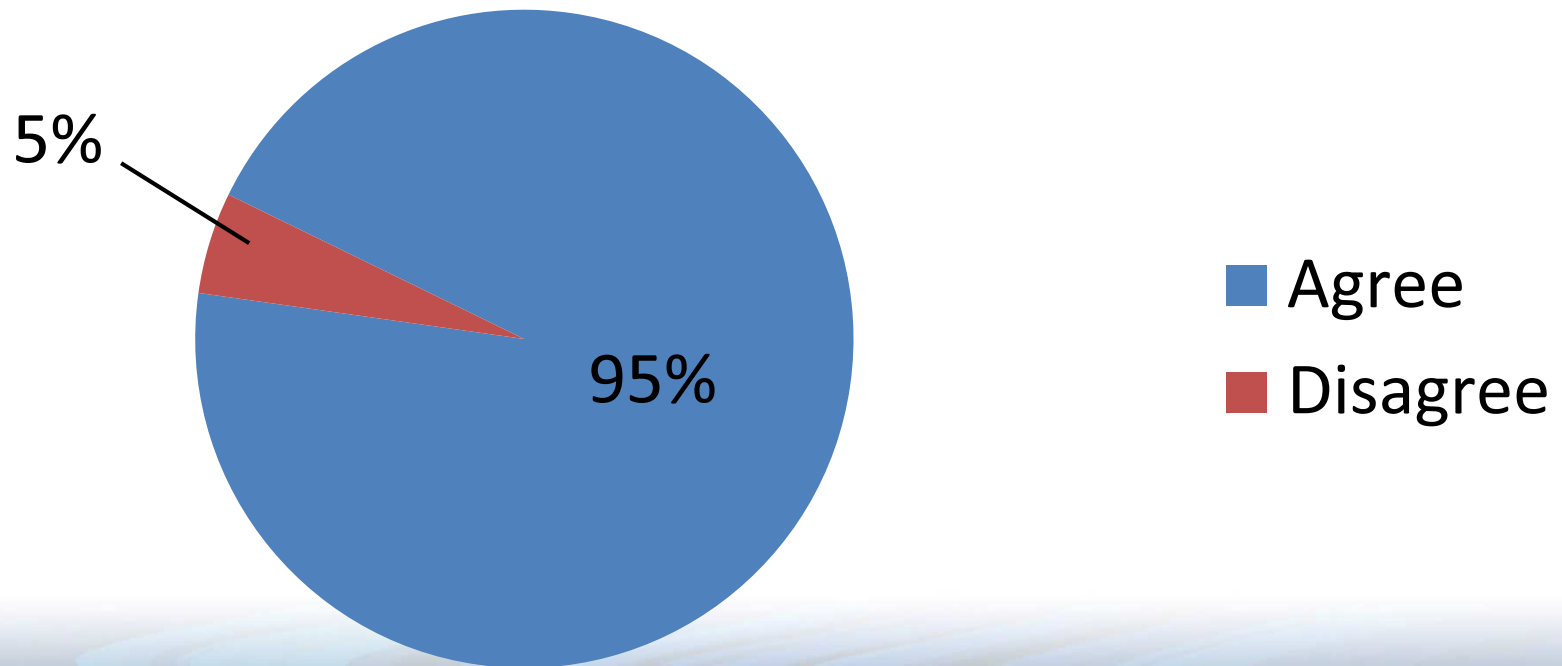




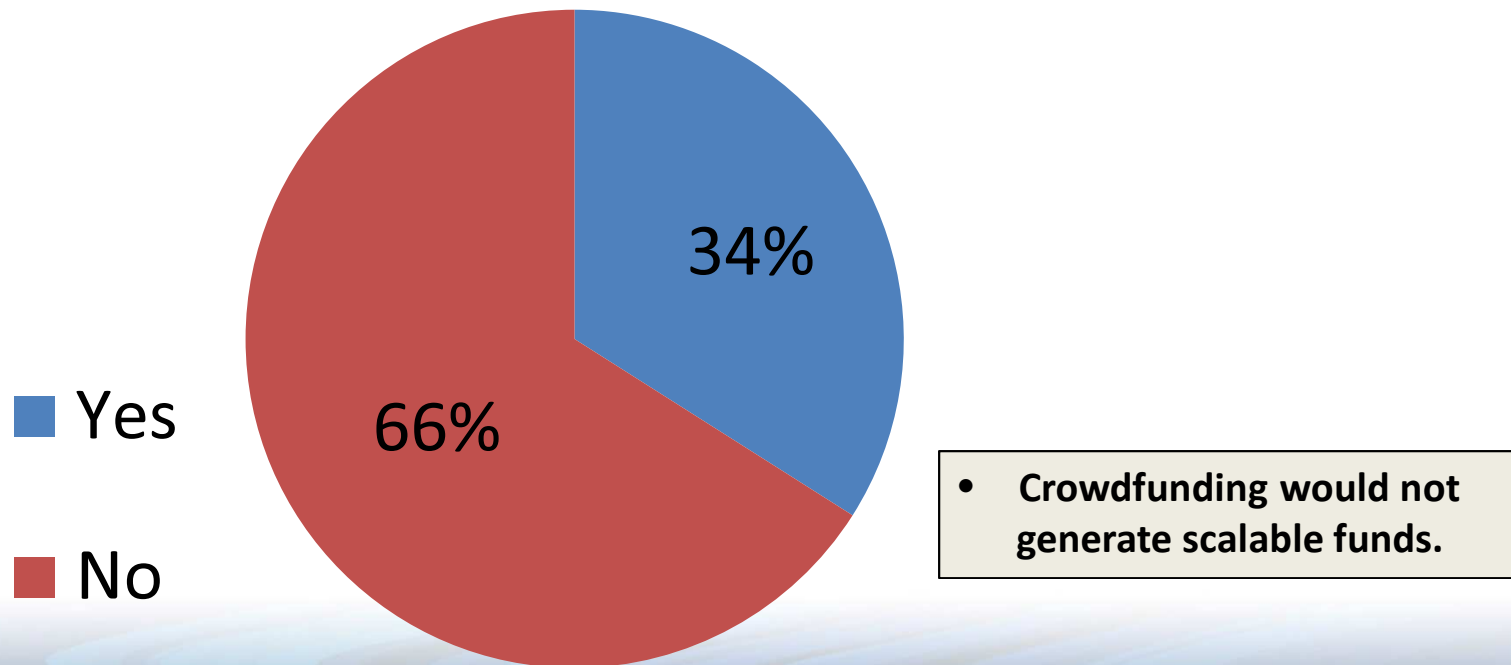
***Agree or Disagree:* In 2020, most expeditions will be partnership based.**



***Agree or Disagree: A national program should facilitate partnerships among U.S. and international communities.***



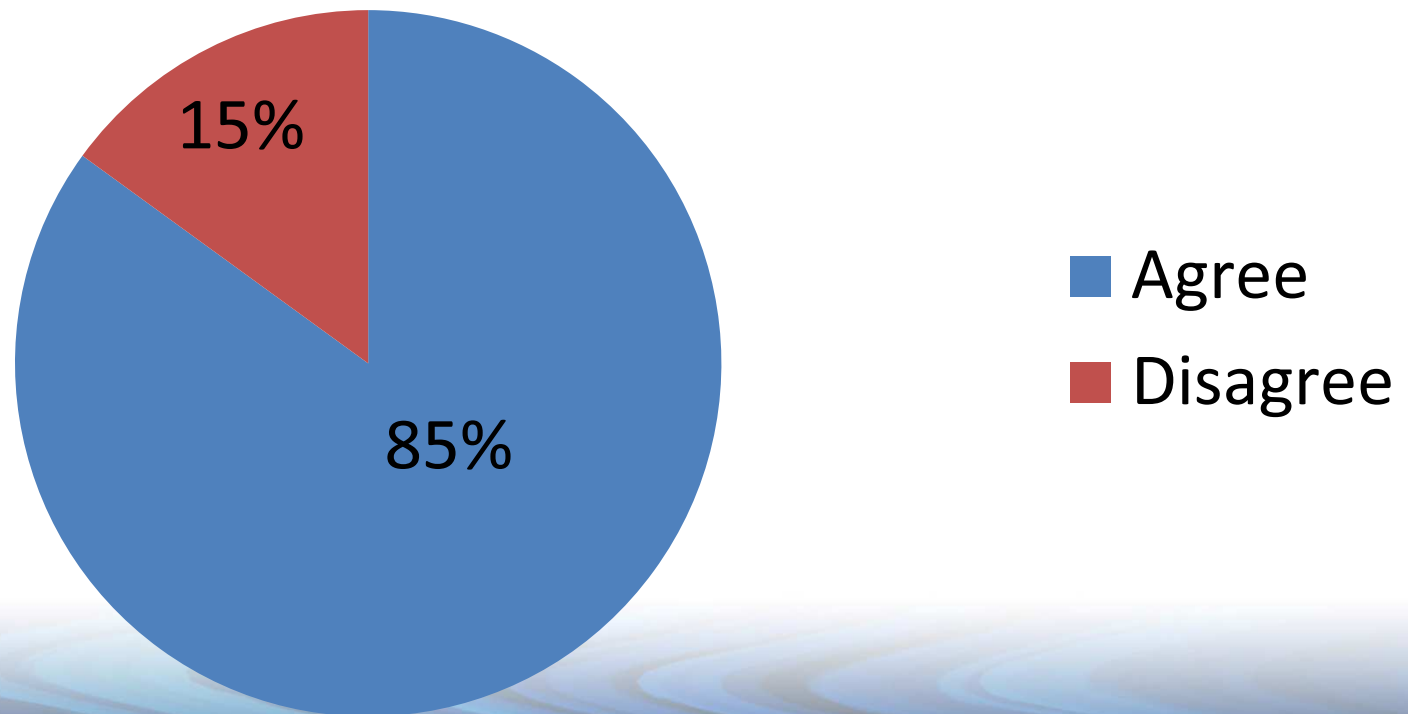
## ***Agree or Disagree: Crowdfunding platforms will increase in importance for ocean exploration science/research.***



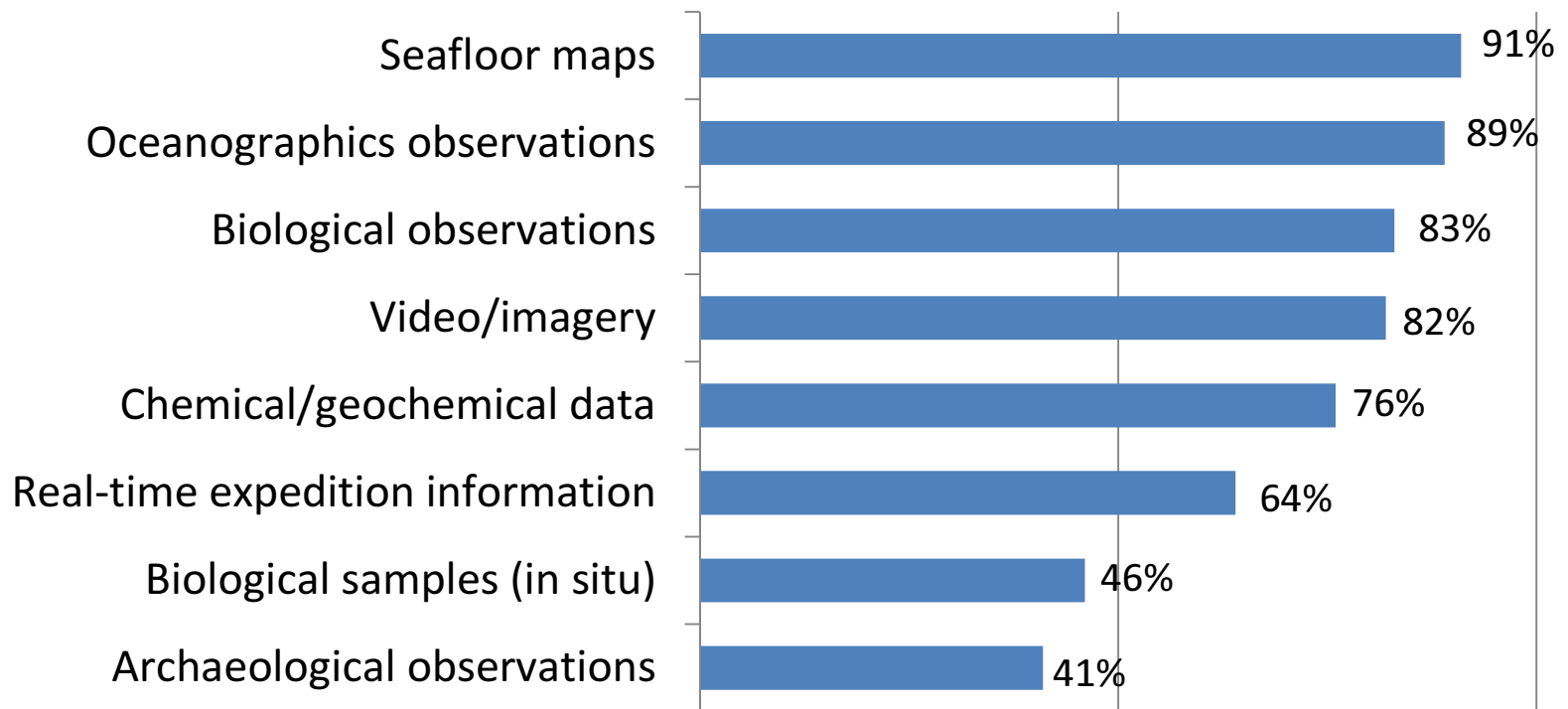
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# DATA MANAGEMENT Survey Results

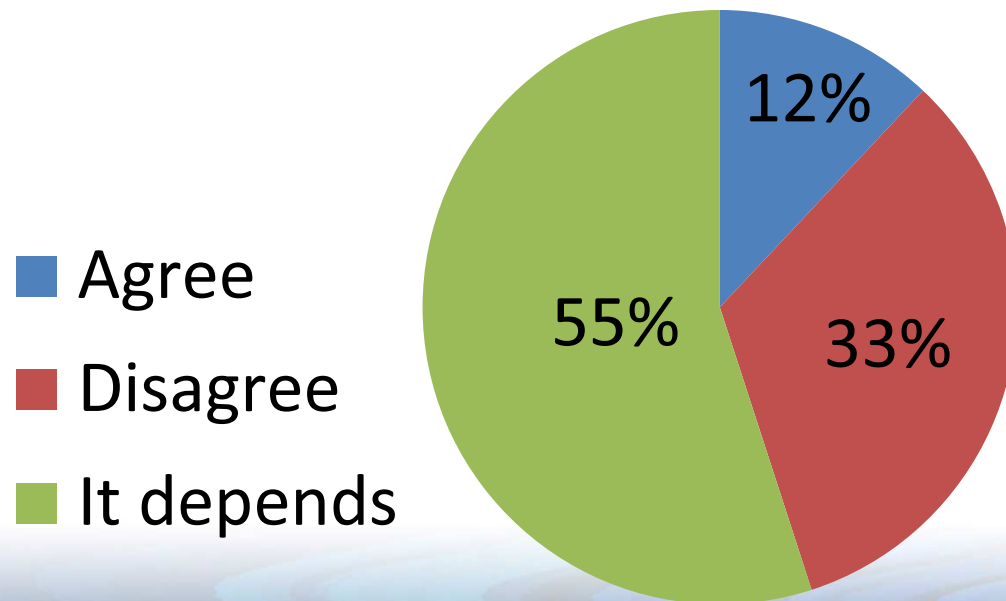
***Agree or Disagree:* Nearly all publicly funded exploration data should be made available in a timely way at no cost.**



## What are the most important data sets to share? (check all that apply)

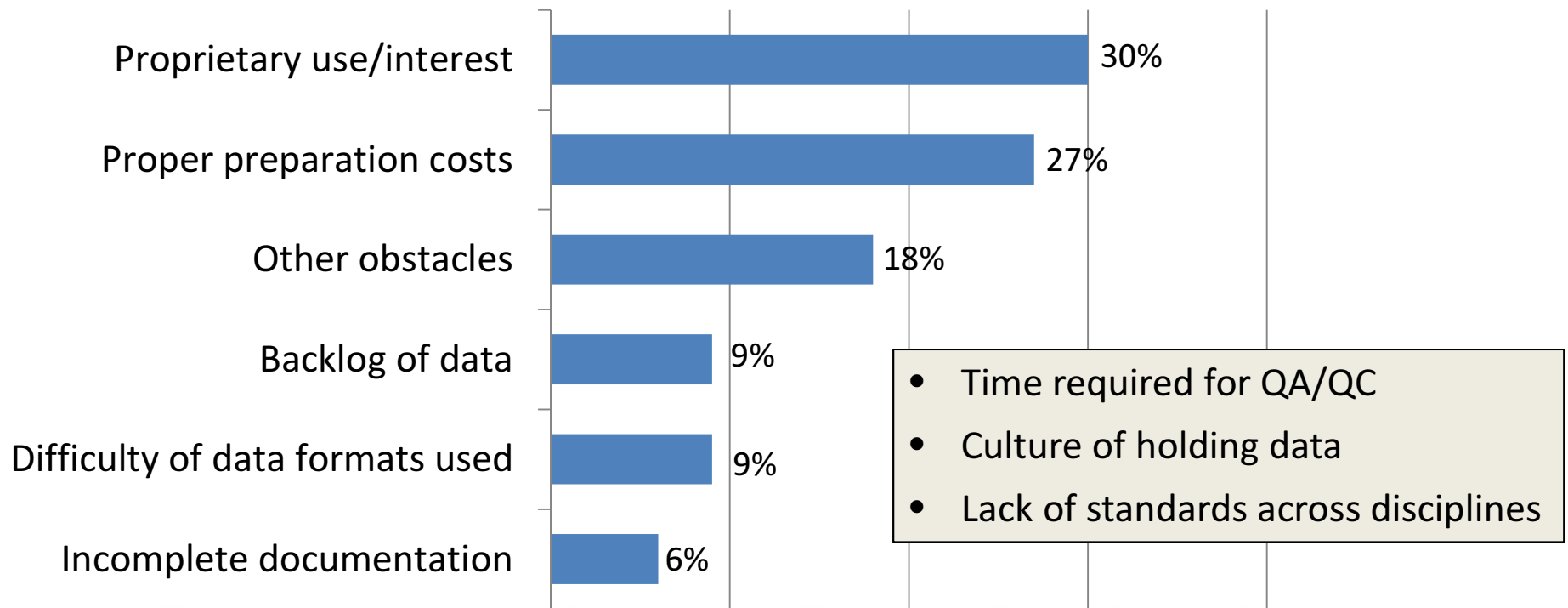


***Agree or Disagree: Data collected using public funds should not be made public until scientists have analyzed results.***



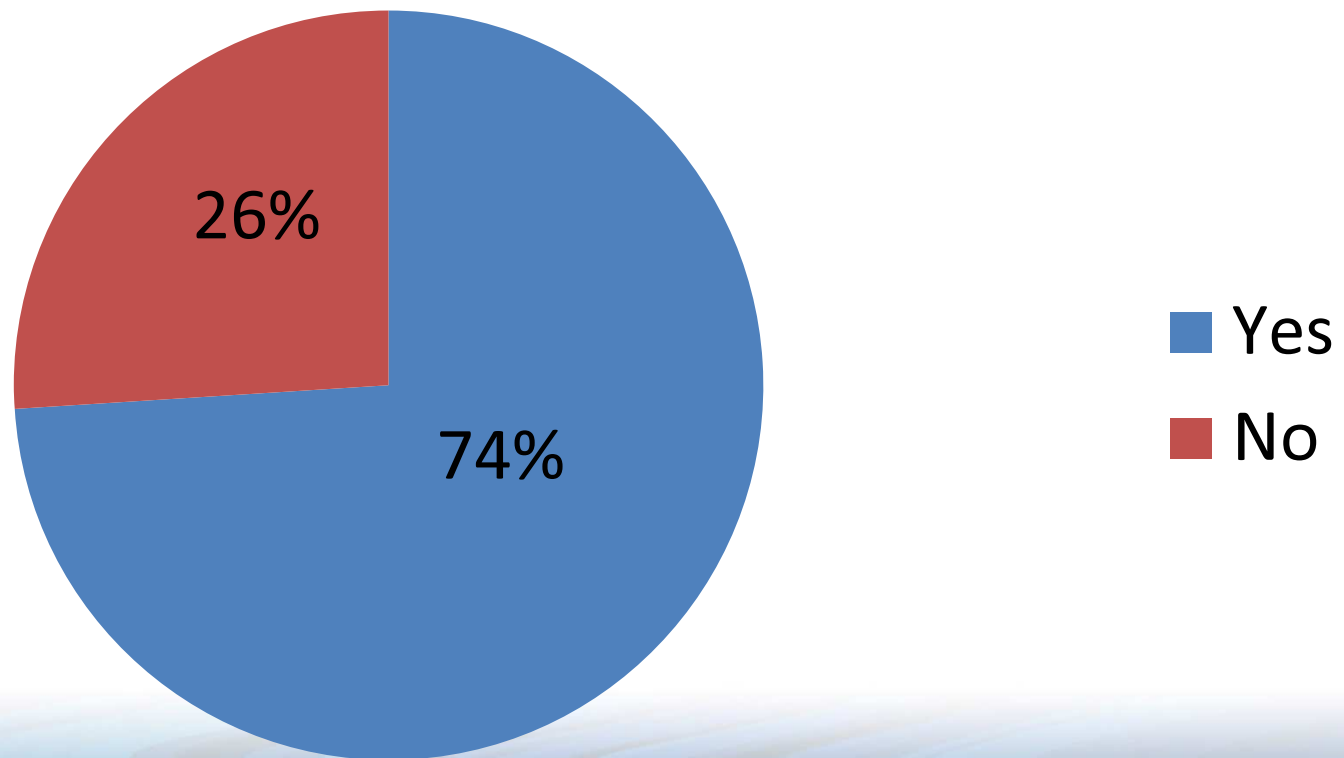
- Visual imagery should be released immediately, other data after review
- Need timeline for release in advance
- Depends on whether funds used were competitive

## What are the biggest obstacles to sharing data?

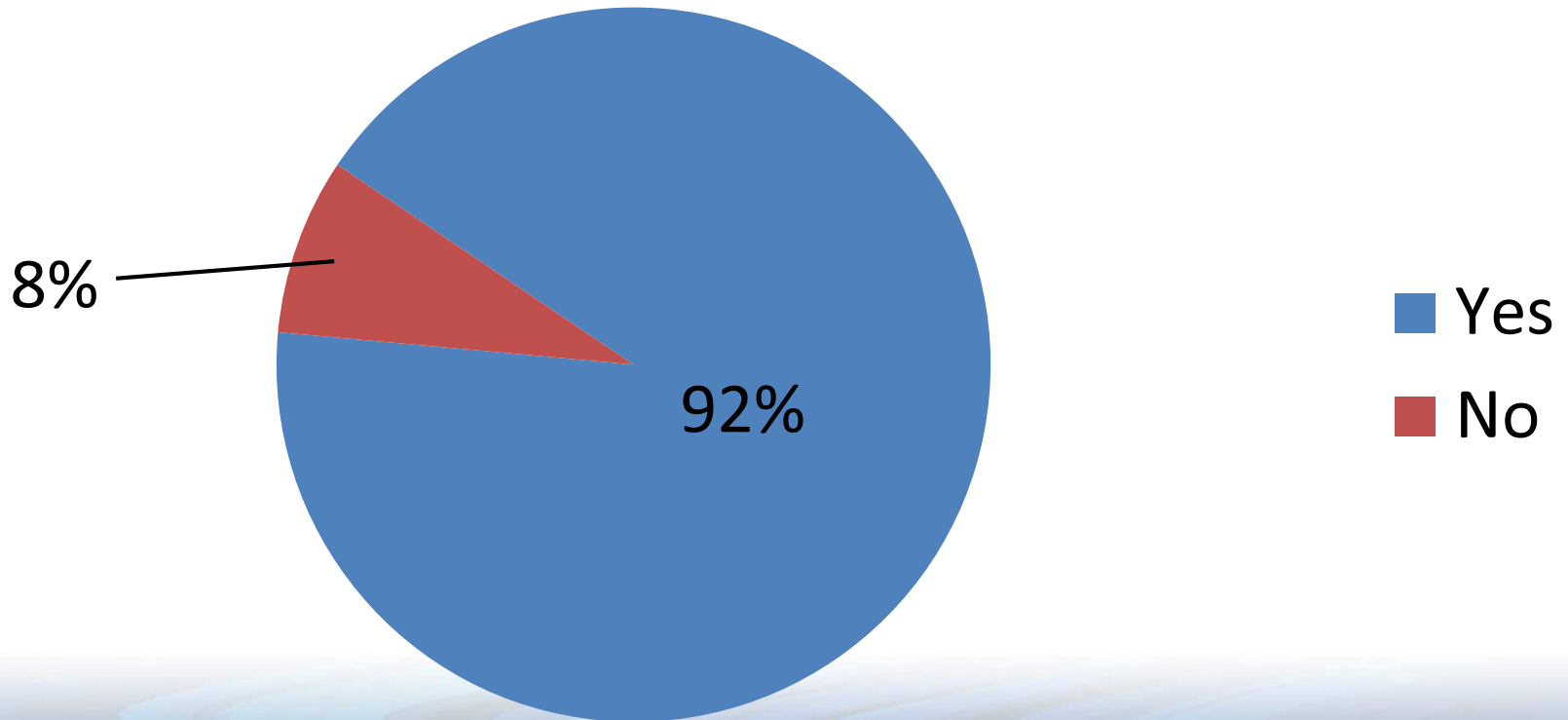




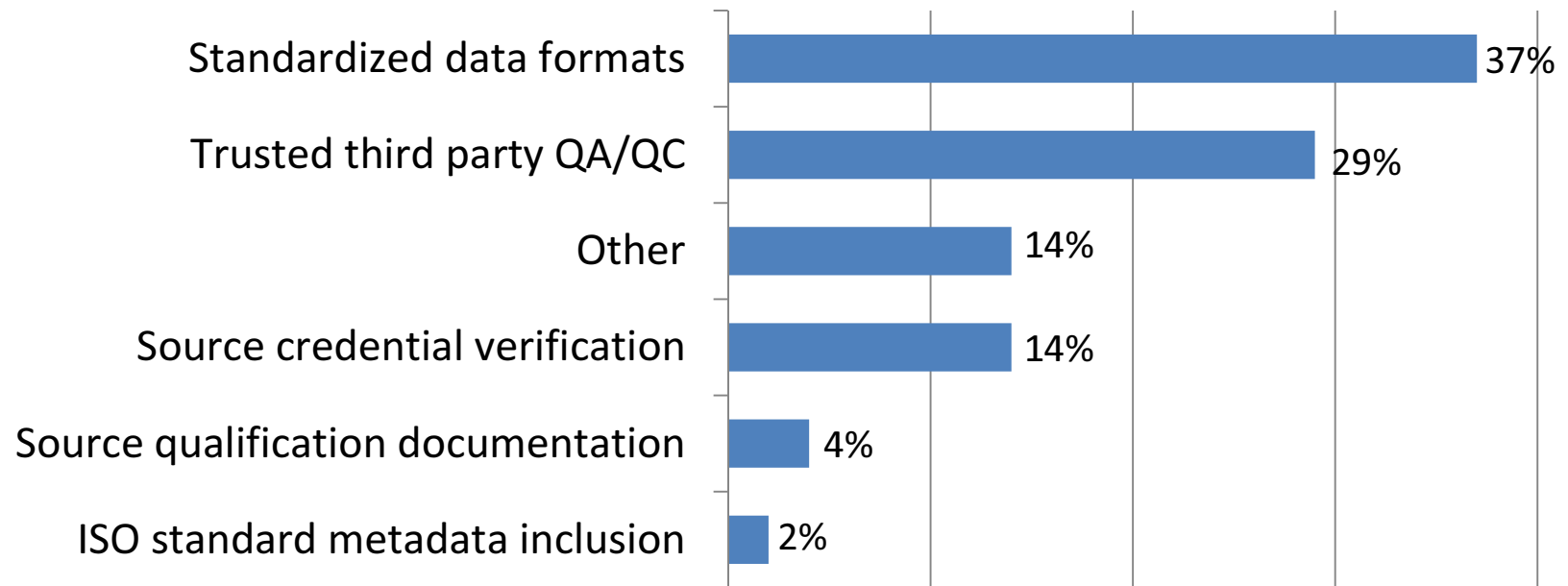
**Are data collected and analyzed by citizen scientists via crowdsourcing important?**



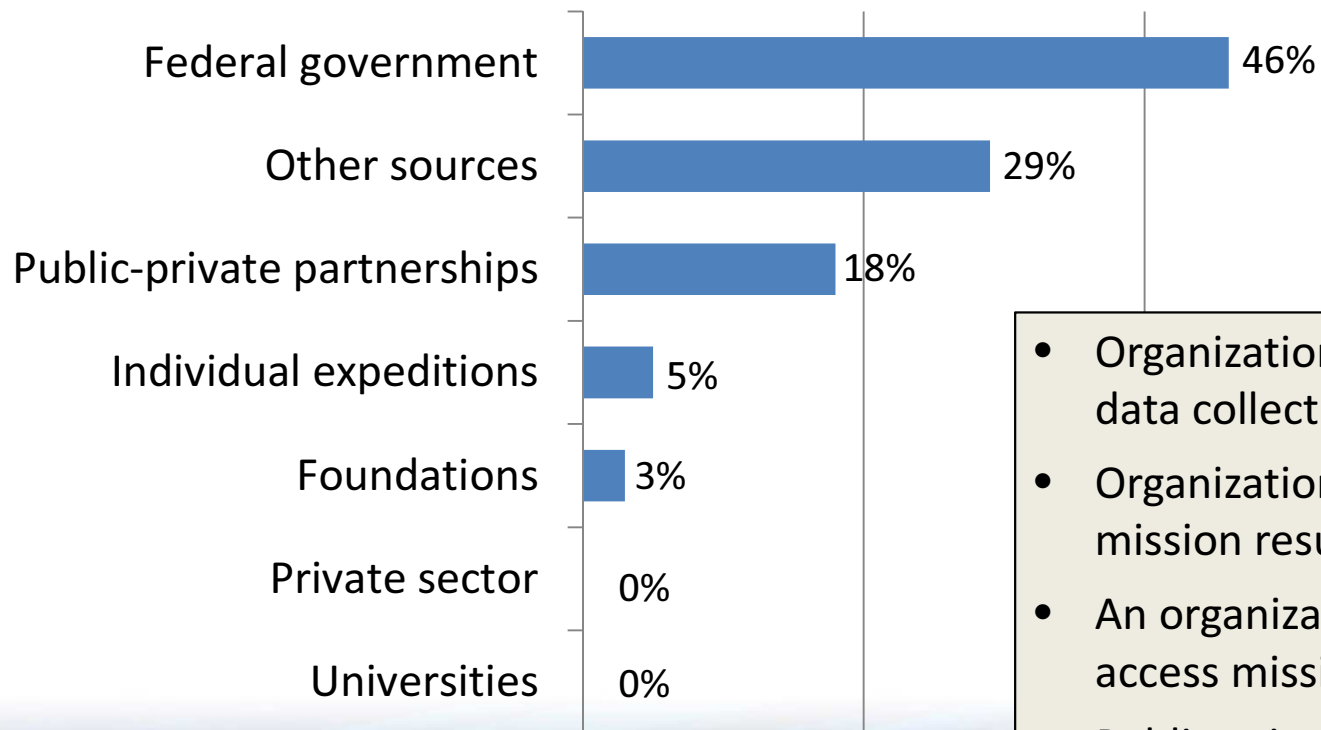
**Should crowdsourced data be included in national/international data sets??**



## What is the most important prerequisite for citizen scientist data inclusion in international data sets?

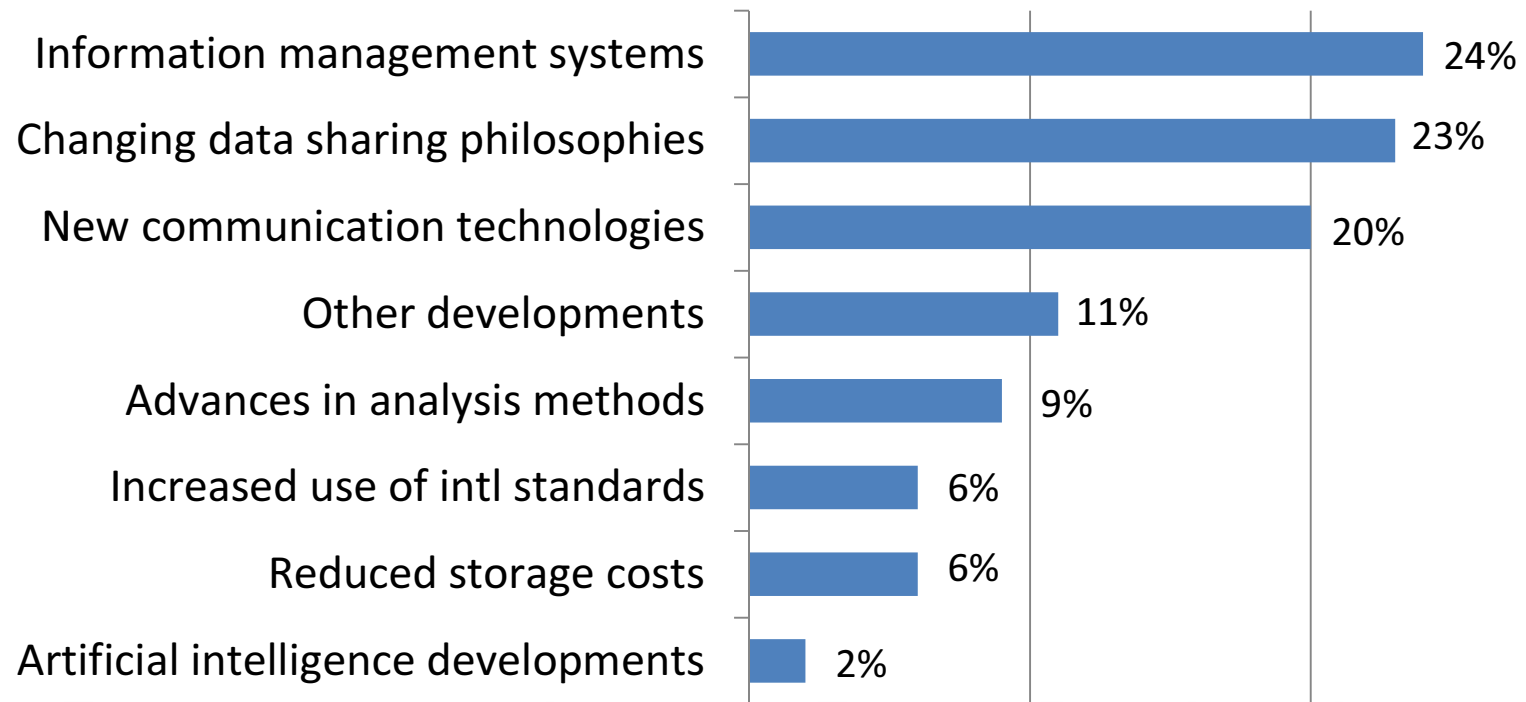


## Who should bear the cost of making data widely available for free?



- Organizations funding the data collection
- Organization responsible for mission results
- An organization with a public access mission
- Public-private university partnerships

## What development has the greatest potential to change the way exploration data are shared?

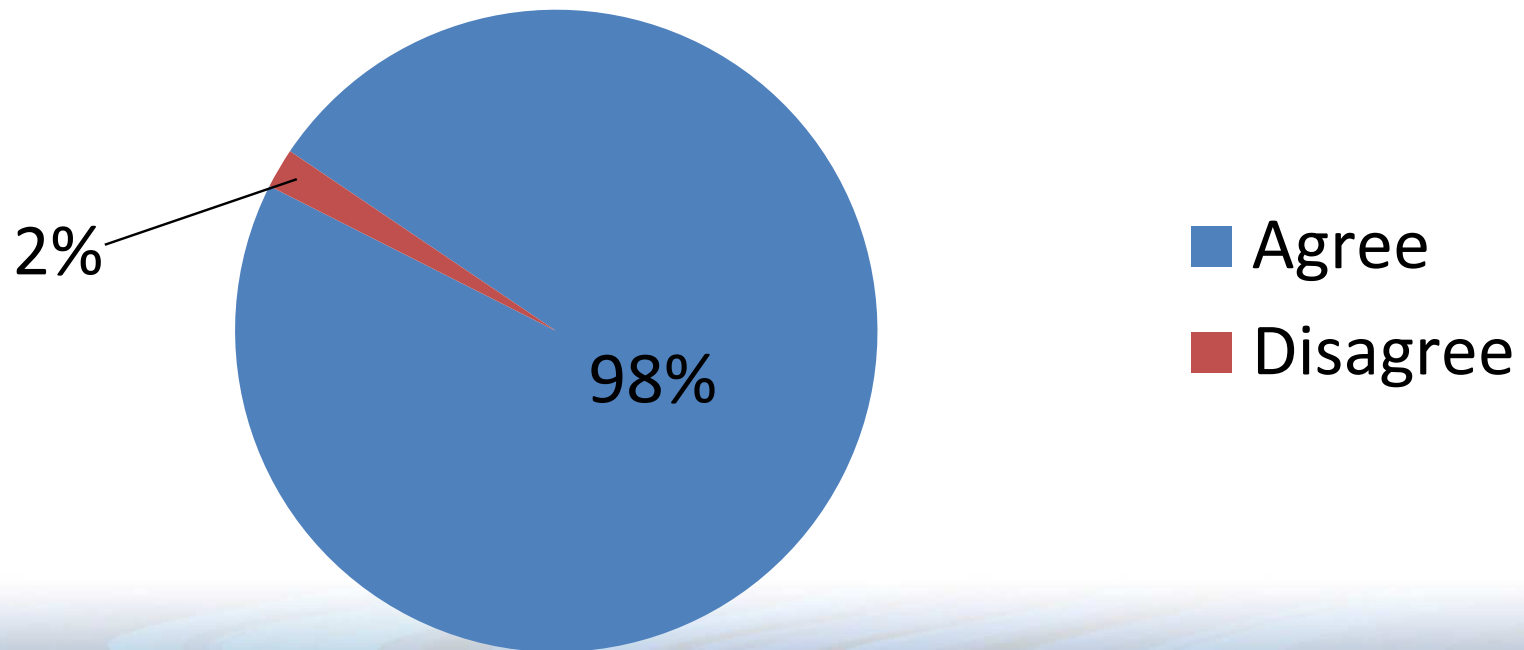


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# TECHNOLOGY

## Survey Results

***Agree or Disagree: Technology will continue to create efficiencies in ocean exploration and make expeditions more accessible.***

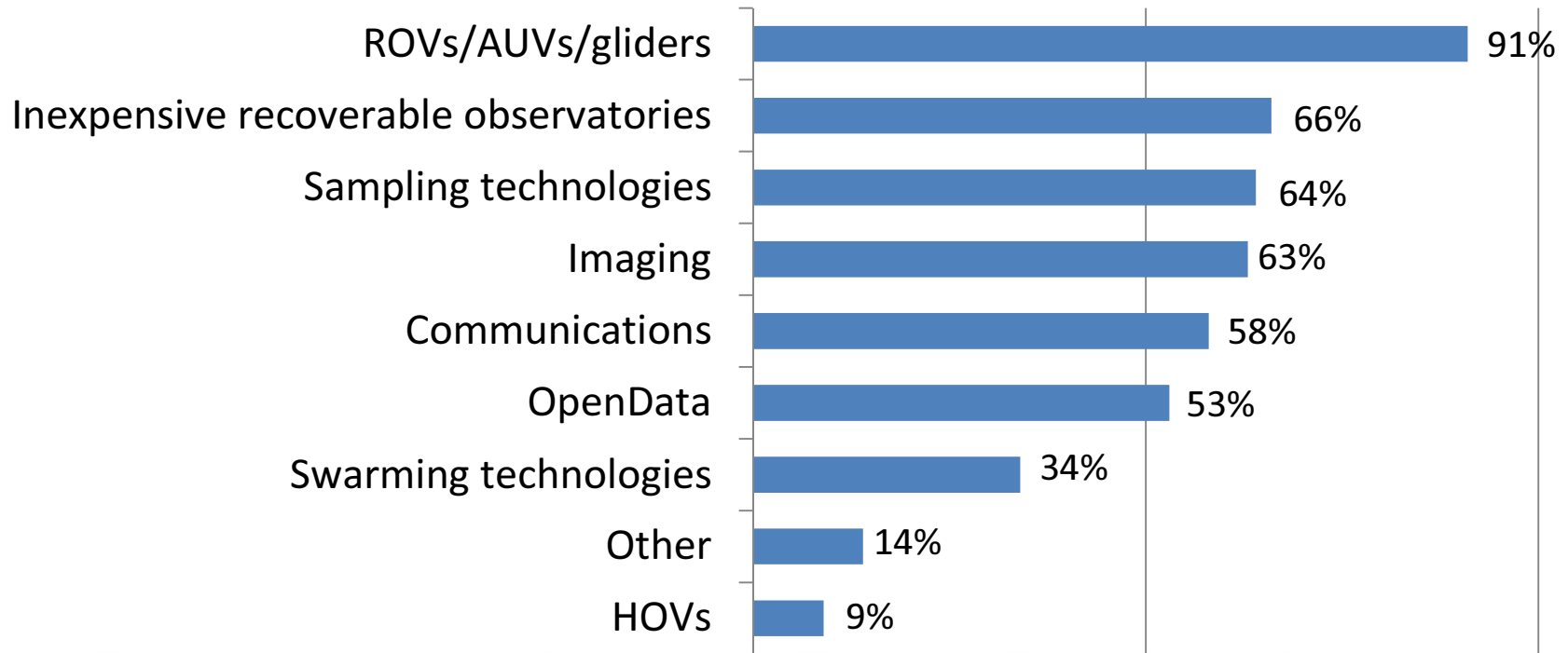


## What emerging technologies will be important in 2020?

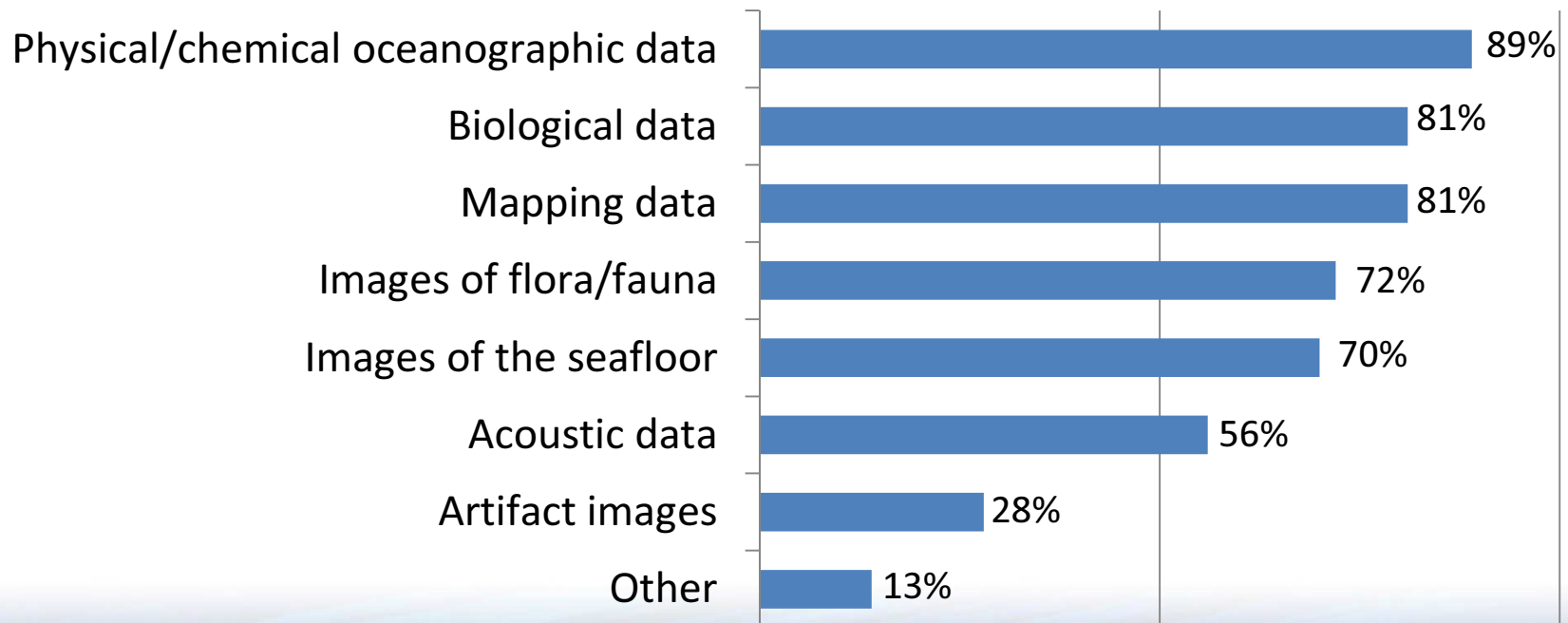
- Autonomous vehicles and ships
- ROVs/AUVs/UAVs/HOVs
- Telepresence and improved real-time control/communications/data access
- Lower-cost sensors and capabilities
- In situ sensors and sampling
- Swarms and networked systems/sensors
- Sensors and systems with greater endurance and capable of deeper depths
- Better imaging and mapping
- And many others...



## What new technologies should a National Program promote? (check all that apply)



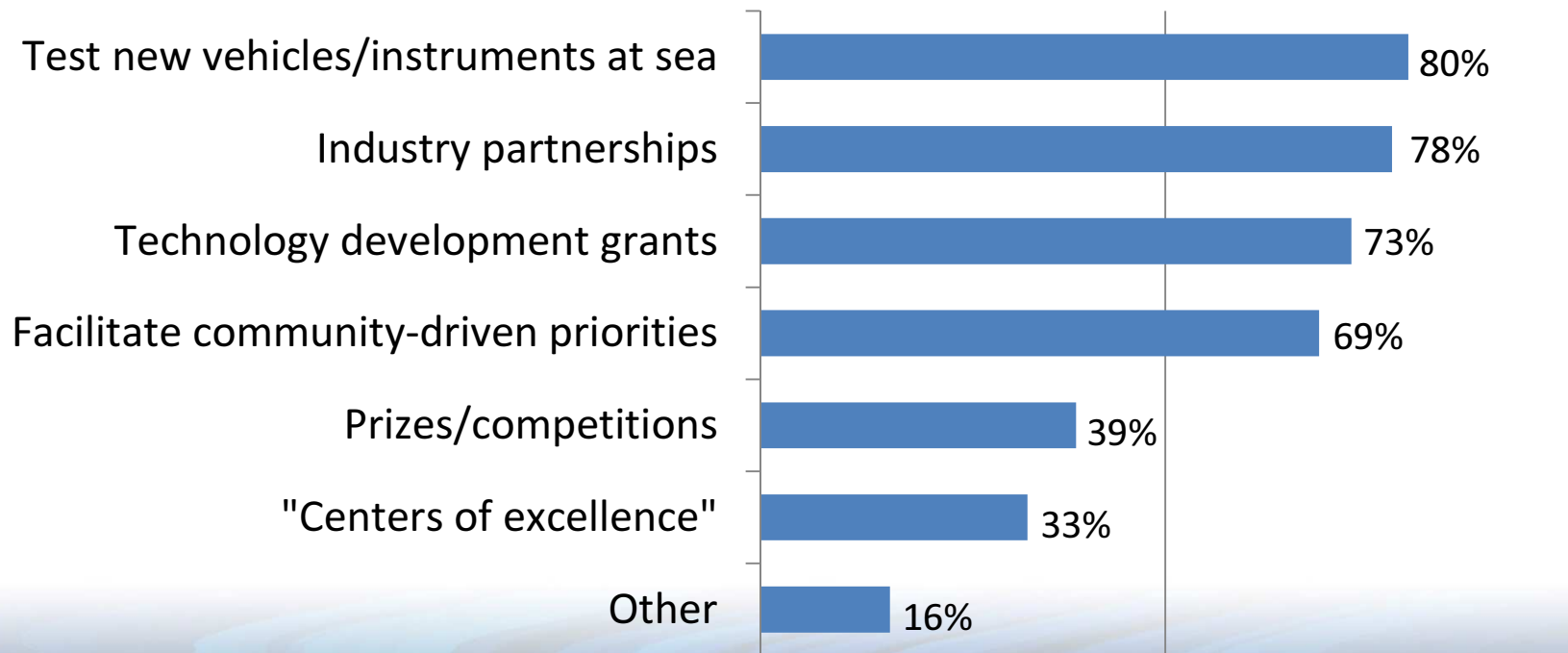
## What data should be collected so that areas/phenomena can be described as having been explored? (check all that apply)



## How can the National Ocean Exploration Program support technology engagement for the ocean exploration community?

- 1<sup>st</sup> priority – Fund emerging technology development for exploration capabilities.
- 2<sup>nd</sup> priority – Adapt proven technologies for ocean exploration.
- 3<sup>rd</sup> priority – Test emerging technologies for exploration capabilities.
- 4<sup>th</sup> priority – Fund basic research for new technologies.

## What are effective tools for promoting ocean exploration technology development? (Check all that apply)

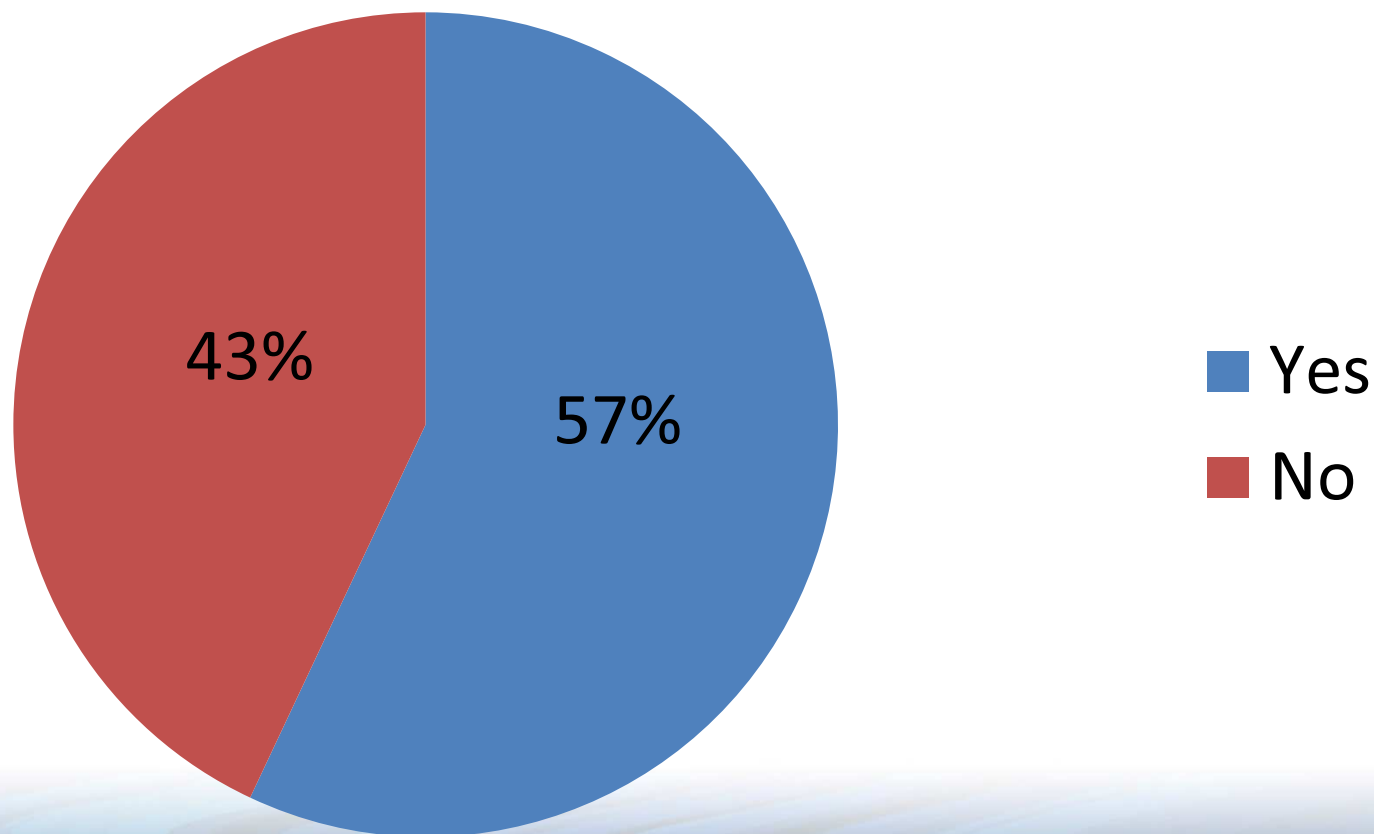


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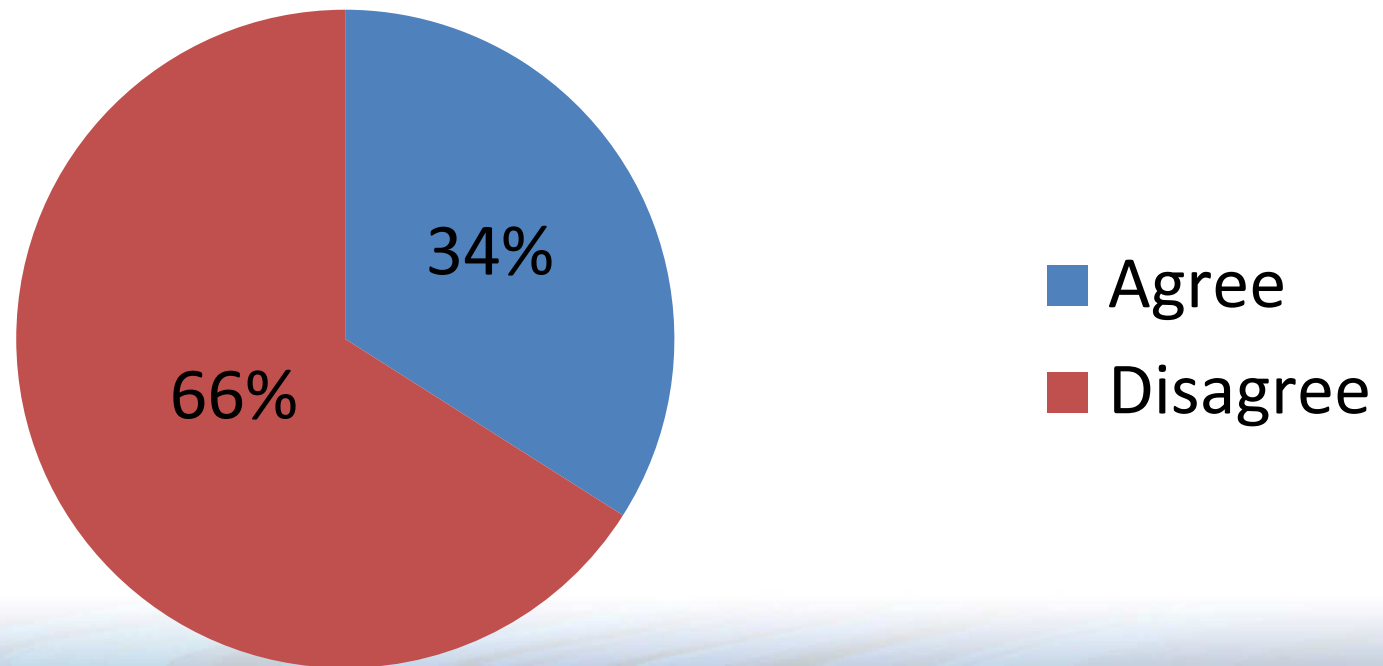
# PLATFORMS

## Survey Results

## Are dedicated ships and assets essential?

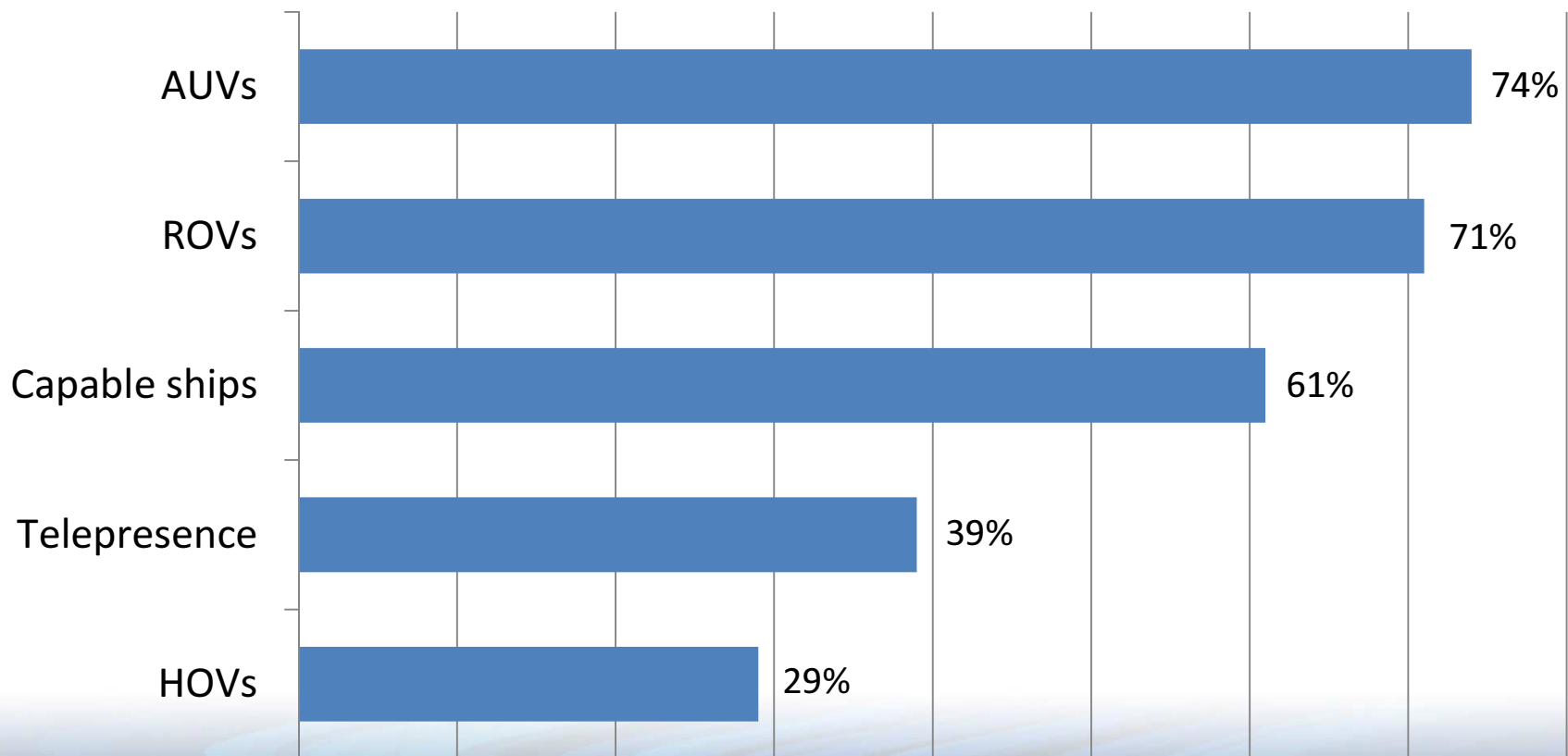


***Agree or Disagree: Expedition ships/platforms are capable of meeting national exploration needs.***



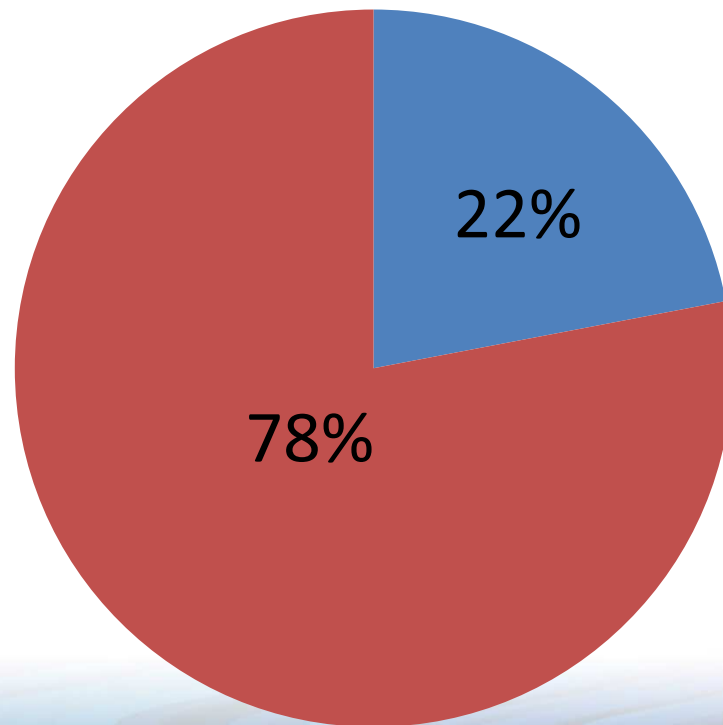
## Where are the gaps in ship/platform capabilities?

(check all that apply)





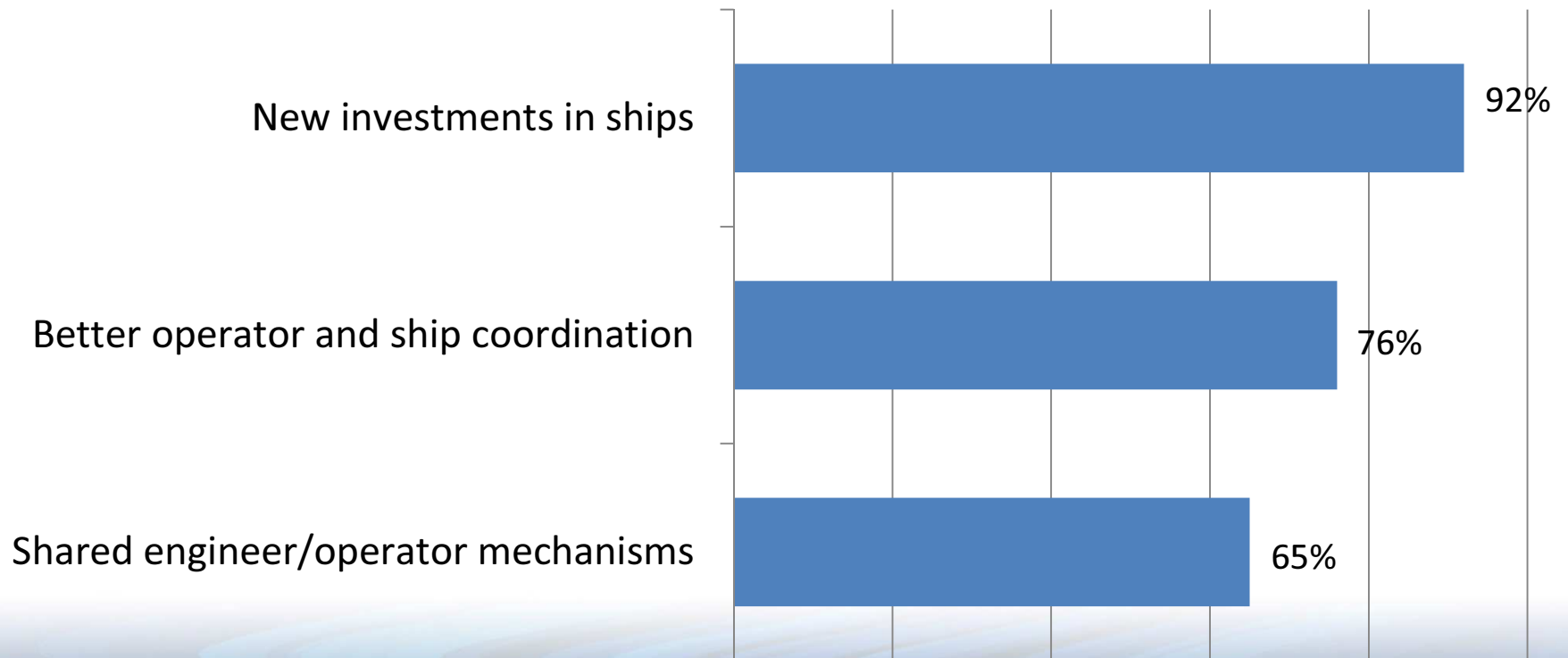
**Will the existing U.S.-based fleet be able to meet 2020 national program needs?**



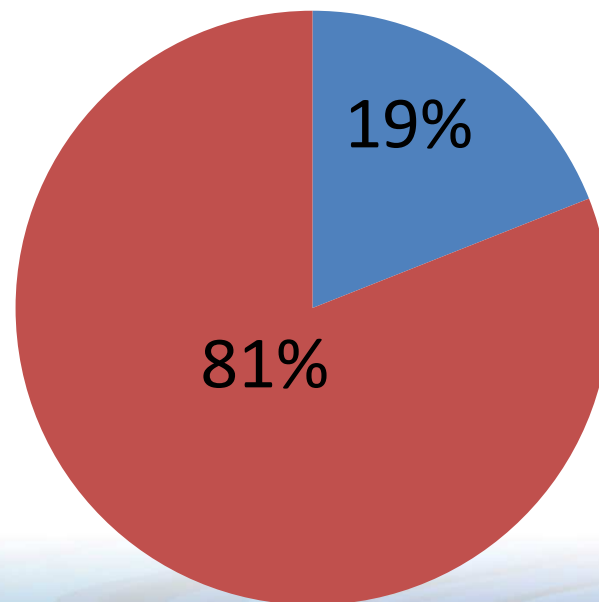
- Yes
- No

## What will help meet national ocean exploration program needs in 2020?

(check all that apply)

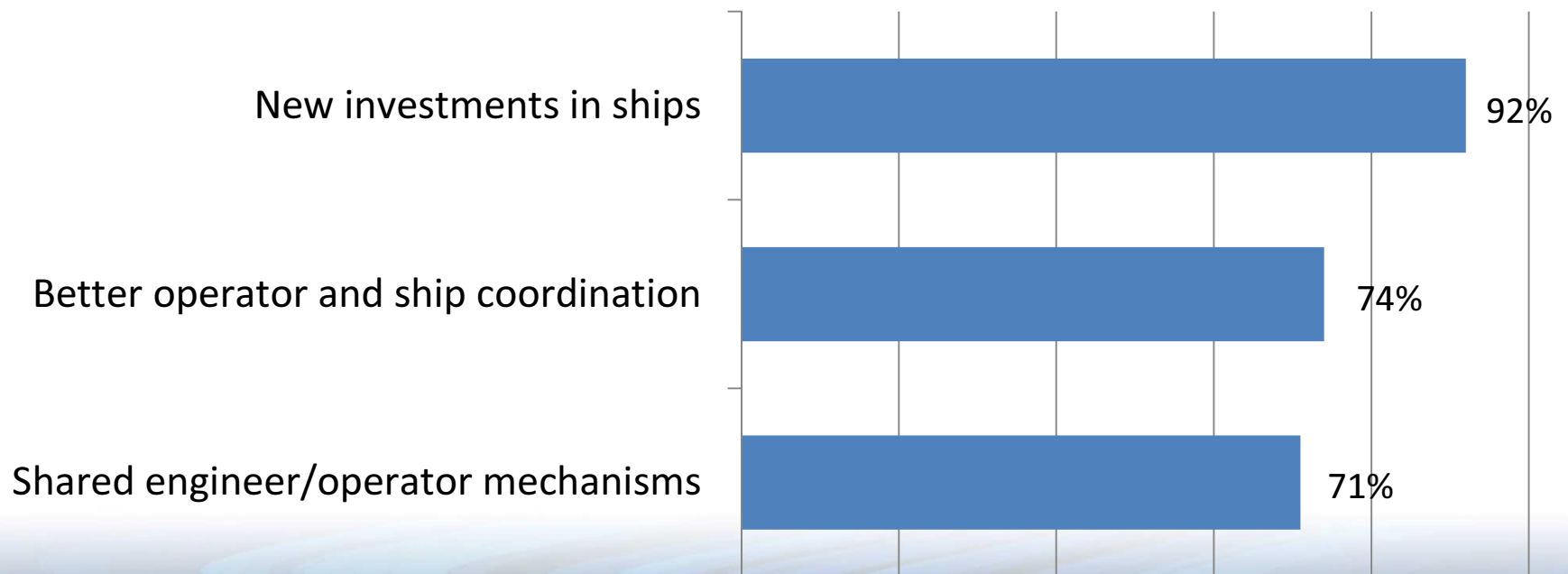


**Will the existing and planned inventory of  
HOVs/ROVs/AUVs be able to meet 2020  
national ocean exploration needs?**

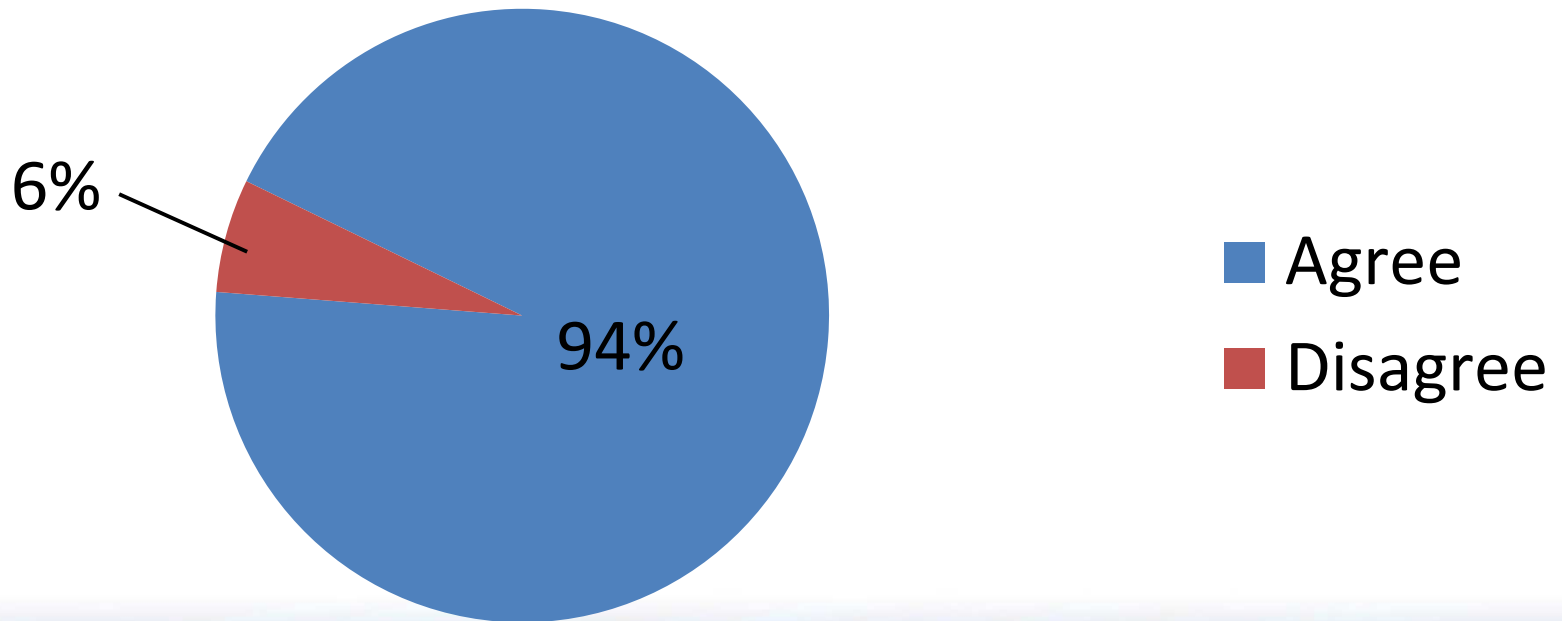


■ Yes  
■ No

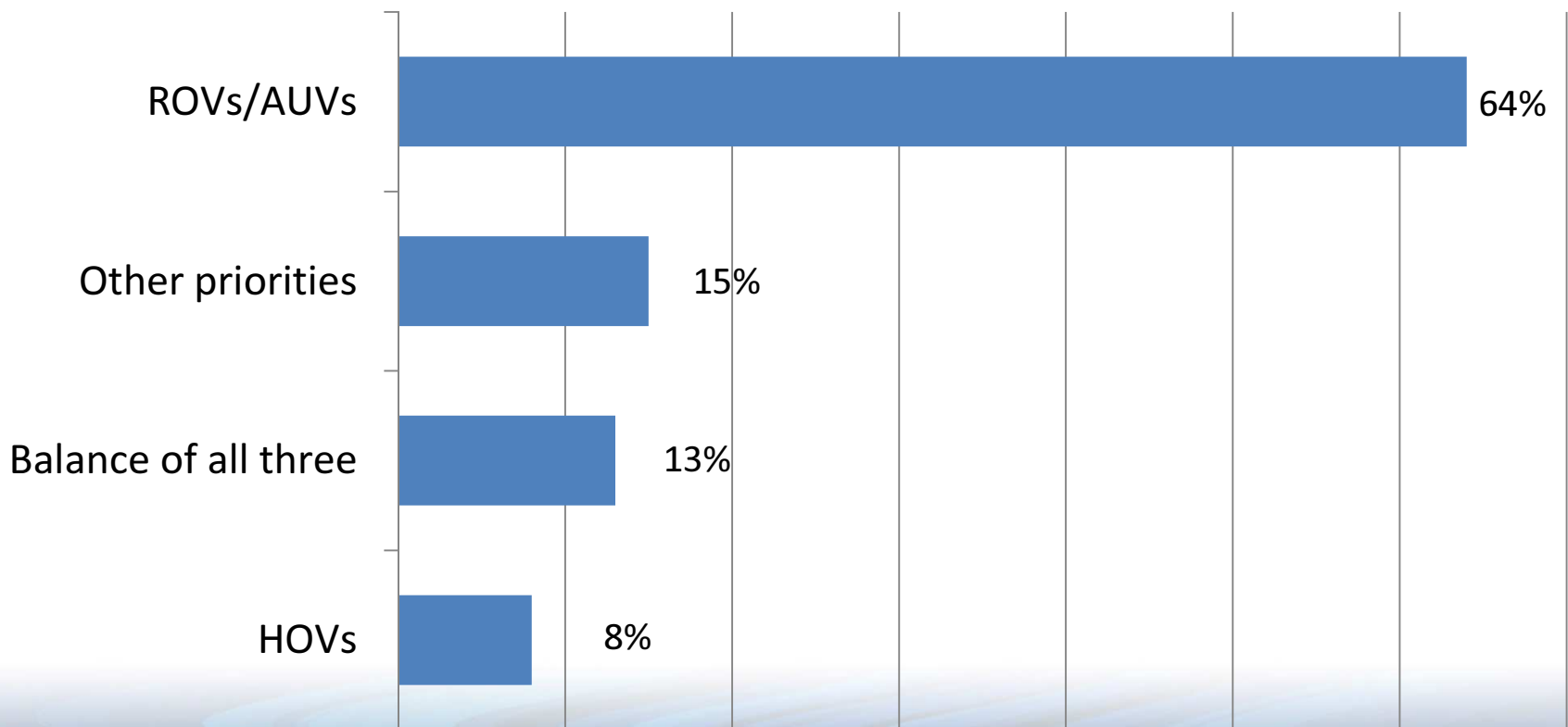
## What will help meet exploration requirements for HOVs/ROVs/AUVs in 2020? (check all that apply)



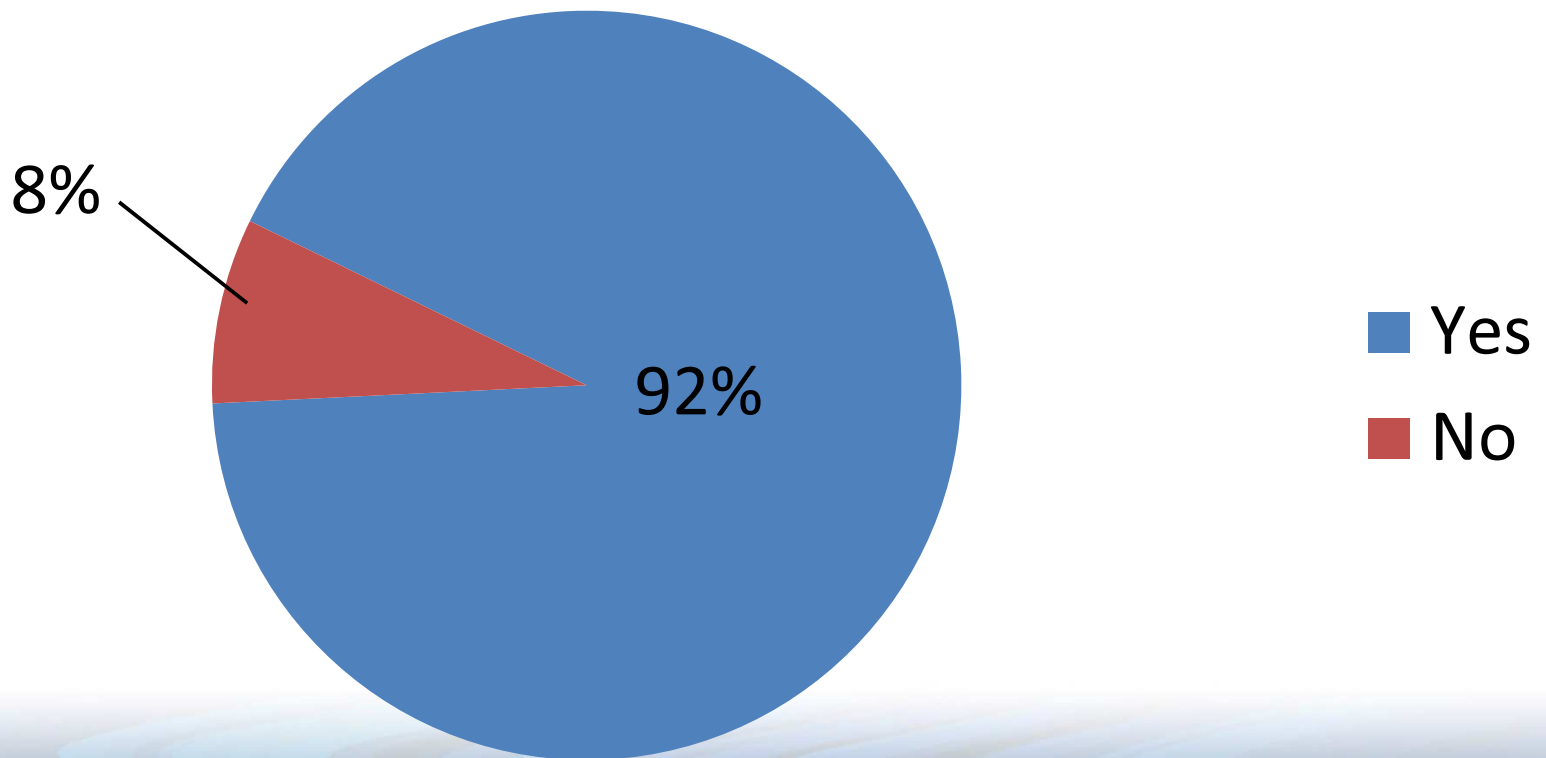
**Agree or Disagree: Platforms (AUVs/gliders) that can replace samples collected by ships are essential in 2020.**



## What should have priority between ROV/AUV investments and HOV investments in 2020?



**Is there a role for systems to collect observations in fixed locations?**

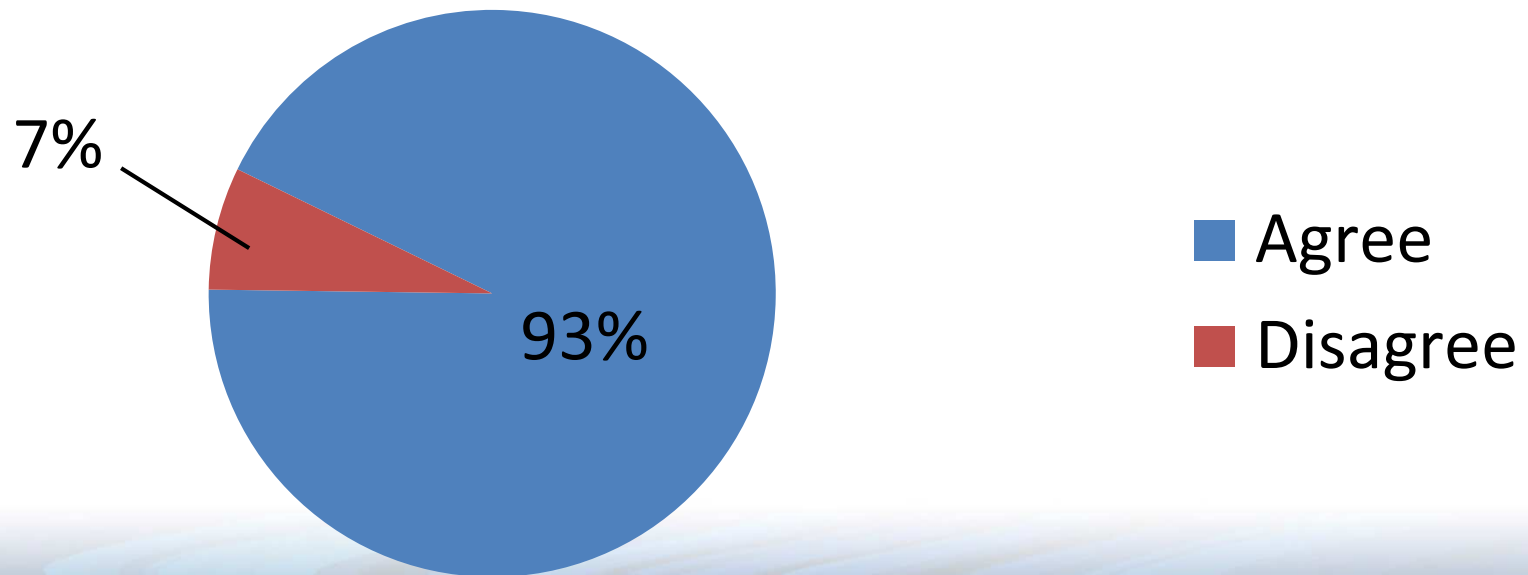


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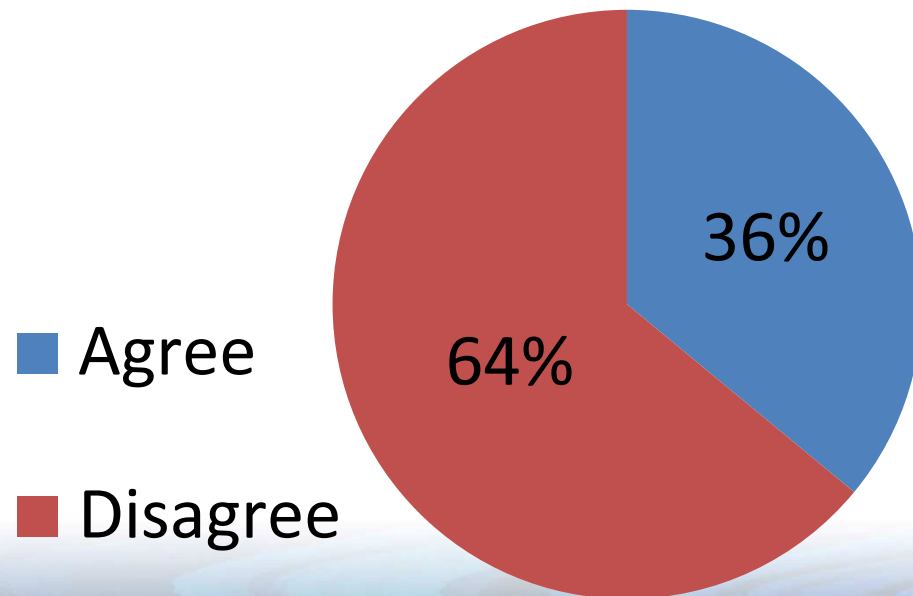
# PUBLIC ENGAGEMENT Survey Results



***Agree or Disagree:* The science community must engage with the public in an active two-way dialogue to bolster support for ocean exploration.**



***Agree or Disagree: Scientists/organizations have the necessary tools to have meaningful interactions with the public about ocean exploration.***

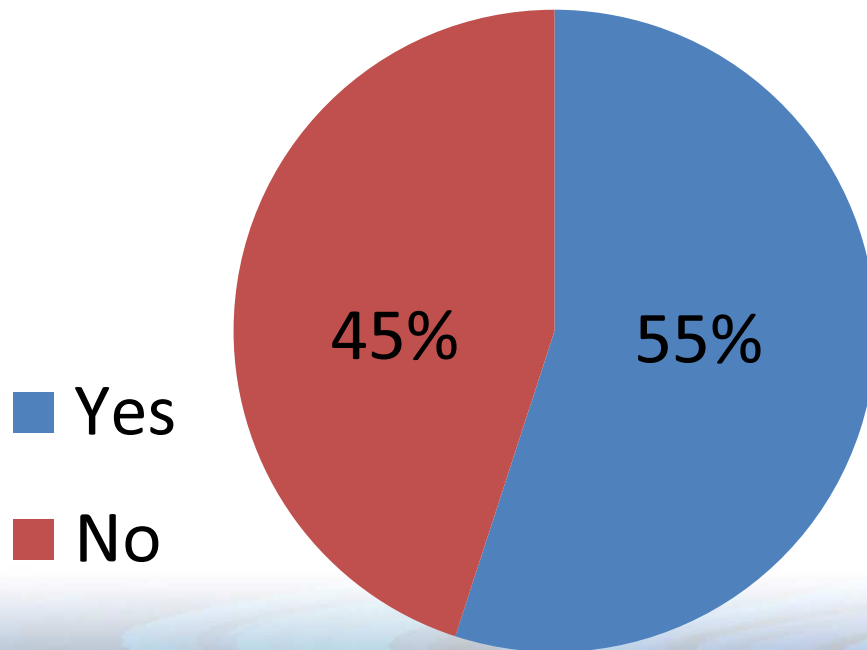


- Scientists need better training, motivation, and resources.
- Need to take advantage of new tools.

## How can the National Ocean Exploration Program support public engagement for the ocean exploration community?

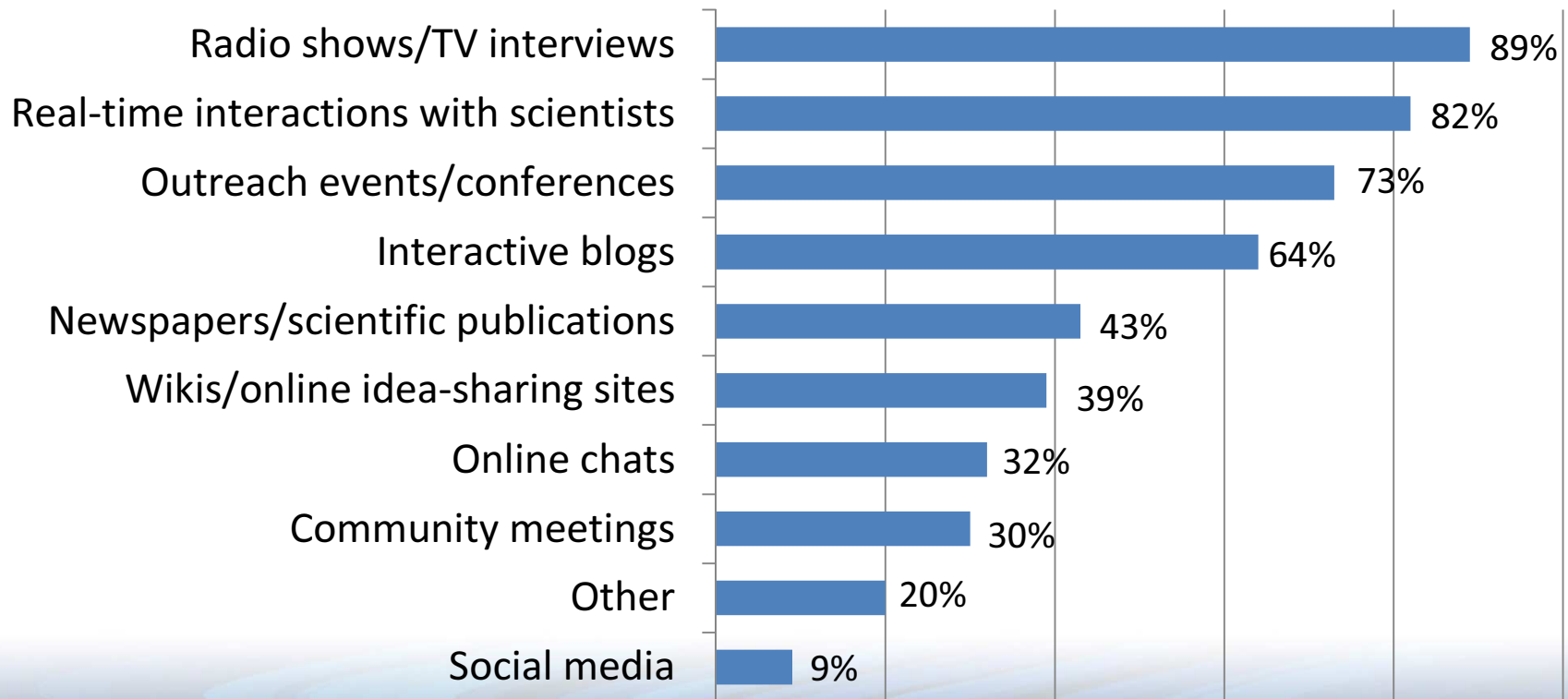
- 1<sup>st</sup> priority – Provide consistent communications strategy to engage the public.
- 2<sup>nd</sup> priority – Provide tools to scientists for public engagement.
- 3<sup>rd</sup> priority – Engage public on behalf of exploration community.
- 4<sup>th</sup> priority – Provide training to scientists on how to engage the public.

## Does real-time streaming data, video, and images via telepresence effectively engage public?



- It is valuable but underutilized
- Need to increase awareness via targeted outreach.

## What are the best ways to engage the public in ocean exploration? (check all that apply)



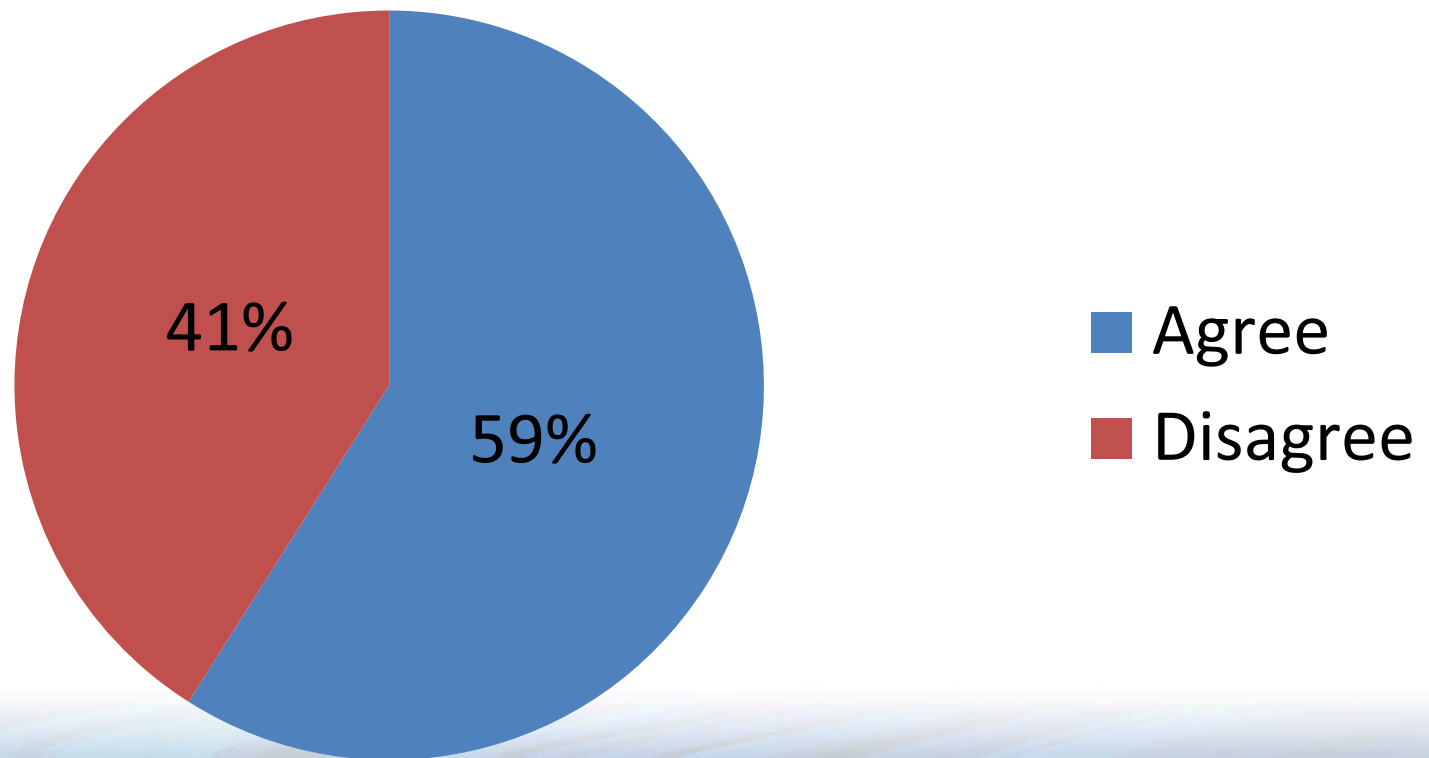
## Which public audiences are most critical to engage as ocean exploration moves forward?

- 1<sup>st</sup> priority – K-12 students
- 2<sup>nd</sup> priority – Ocean-interested public of any age
- 3<sup>rd</sup> priority – Undergraduate/graduate students
- 4<sup>th</sup> priority – Aquaria/museum visitors
- 5<sup>th</sup> priority – Young people newly entering workforce (18-25)

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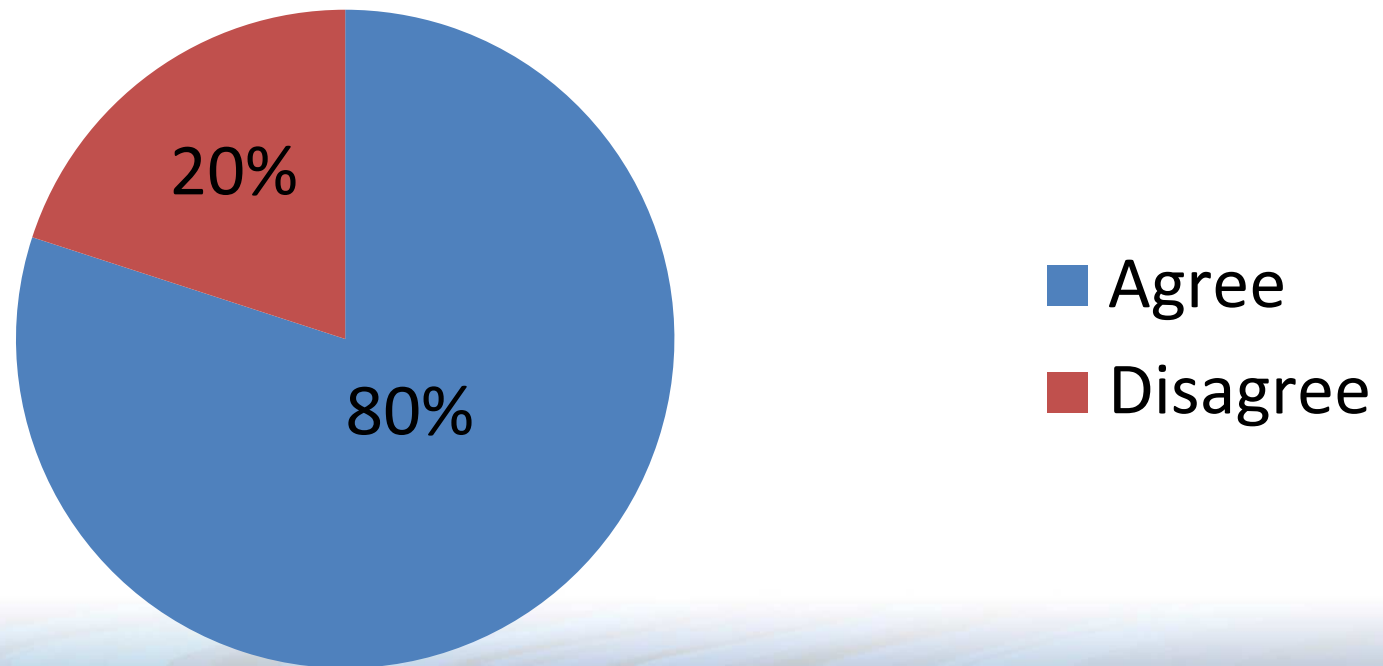
# CITIZEN EXPLORATION Survey Results

***Agree or Disagree:* In 2020, citizen scientists will play a major role in ocean exploration.**

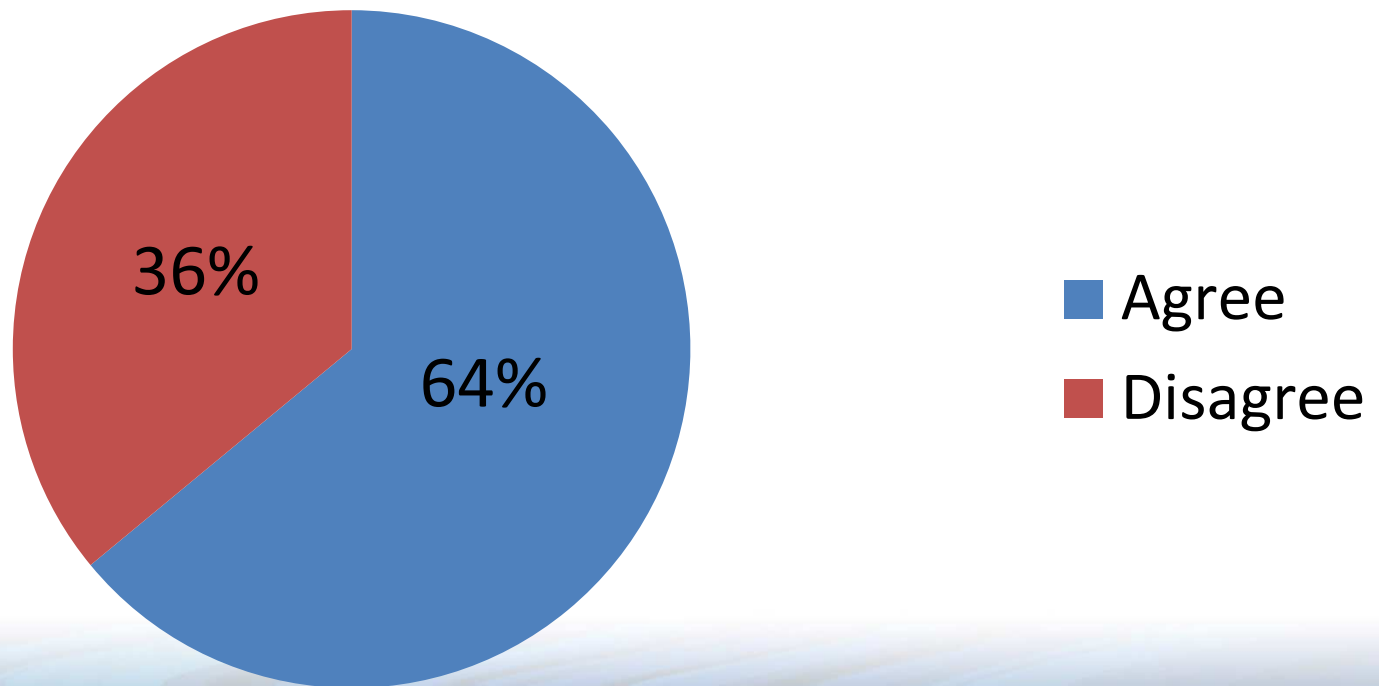




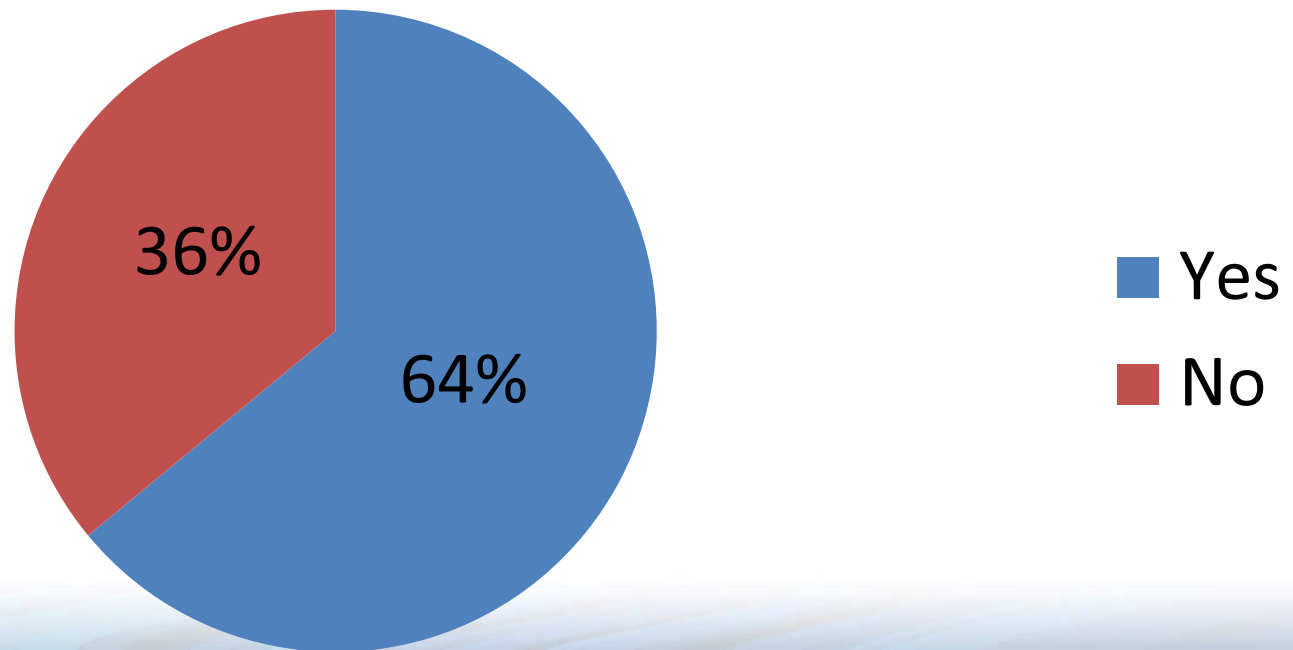
## ***Agree or Disagree: Citizen scientists will be able to participate usefully in major expeditions.***



**Agree or Disagree: Citizen scientists will be able to contribute their own ROV/AUV expedition results, usable by the global community.**



**Should a national program serve as a clearinghouse to collect citizen explorer observations?**



**Should a national program encourage citizen explorers to participate virtually in expeditions to train their own community?**

