Grants Evaluation Team Findings

September 2024

Introduction

The Grants Evaluation Team (GET) is composed of [11 experienced ARDC volunteers, former applicants, board, staff, and members of the public.](#) In Q1 and Q2 of 2024, they reviewed 99 final reports from ARDC grant-funded projects submitted between August 2021 and March 2024. Each final report was reviewed by a subset of the volunteers and then discussed with the group to identify trends and learnings. The group met biweekly for a total of six meetings to process the results. The goal was not to perform a formalized evaluation; instead, the aim was to reflect on the work done from a variety of perspectives and provide the community with an opportunity to identify takeaways for themselves.

The aim of this informal evaluation was to begin to answer three main questions;

- Were these grant projects a good use of ARDC funds?
- Were these grant projects successful? and
- What information about these grants should be shared back with our community?

These are the high-level findings of this inquiry:

1. A majority (71%) of our grant projects are clearly successful in advancing ARDC's goals.

2. Grantees completing larger projects need more support in knowing what information to share back with us. As a result, a significant portion of our funded projects (22%) have unclear outcomes.

3. The Grants Advisory Committee, who recommends grants for funding, accurately anticipates which proposals will be successful.

4. ARDC can leverage learnings from these final reports to share back valuable information with our community about what kind of projects are impactful and how to avoid common pitfalls.

5. Youth education and small amateur radio club projects stand out as exceptionally effective at promoting amateur radio and are often particularly cost efficient. These projects ought to continue to be prioritized in the future.

Methodology

The GET was established with the aim of using the information already provided by grantees to enhance how ARDC serves the community. The goal was to perform an informal evaluation that brought together members of the public and grantee peers, as well as ARDC volunteers and staff. While we use the word "evaluation" throughout this report, we did not use a strict, formal evaluation structure or work with a professional evaluator. Instead, the focus of the work was on actionable takeaways from a qualitative and high-level assessment. The GET volunteers avoided making recommendations on the outcomes of any individual project, instead the recommendations are more broadly focused on major trends.

The GET was divided into three teams to review a subset of the submitted reports. Each week reports for similar projects were grouped together to make comparison easier. The intention with this was to be able to notice outliers and opportunities for learning. GET volunteers answered the following questions about each final report:

1. Did anything stand out to you about this report or project? *Things to consider: Were there themes you noticed? Was this project unique in some way? Did you find the report particularly interesting or particularly unhelpful?*

2. Is there anything in it that would be worth sharing with the Board, Grants Advisory Committee, or public? *Things to consider: Any learnings the public could benefit from? Are you seeing a metric that could be useful to track? Should ARDC fund more or fewer projects like this?*

3. This project was successful. Rank: strongly agree, agree, weak agree, weak disagree, disagree, strongly disagree, unknown.

4. Why or why not?

5. This project was a good use of funds. Rank: strongly agree, agree, weak agree, weak disagree, disagree, strongly disagree, unknown.

6. Why or why not?

7. Is there information we did NOT get that would have been useful?

8. Reviewing this report was helpful for: nothing, ensuring compliance, useful lessons learned for ARDC, information would be useful for promotional uses, or other

9. If you selected "other" please explain below.

Reviewers were encouraged to approach the process with flexibility. "Success" was defined as meeting both the grantee's and ARDC's stated goals, and "a good use of funds" was focused on having a positive impact. The GET acknowledged and frequently discussed that "success" and

a "good use of funds" can have multiple subjective interpretations. Our goal was to take a qualitative, broad view of these terms and focus on the "why" questions to describe the many ways in which each project was able to make a positive impact, or how it failed to.

Overall, ARDC Funded Projects are Successful

Grants Evaluation Team (GET) volunteers individually evaluated every final report submitted to ARDC to assess if the project was successful and if it ended up being a good use of funds.

Almost all of the grantees self-assess as at least partially successful in meeting their own goals or learning from failures. **Even when we rate them as "less successful," these grantees are still benefiting their communities and learning from their projects**.

In summary, ARDC's goals include:

- Advancing the state of the art in amateur radio, communication science, and technology.
- Fostering open access to technical information and enabling individual technical experimentation.
- Preservation of the right to innovate.
- Supporting technical advances for the benefit of the general public.
- Expanding interest and access to amateur radio.
- Enabling education projects that aim to educate or mentor individuals with regards to amateur radio, wireless technology, or digital communications.
- Broad reach.
- Social over commercial benefit.
- Inclusion of underrepresented groups.
- Empowerment of individuals, and distribution rather than centralization.

You can read more about these goals on our website.

In all, **the vast majority of ARDC funded projects clearly advance our goals** and effectively work within their communities. 71% of projects were successful, 22% were unclear, and 6% were less successful. As may be expected, projects that began more recently align more closely with our current goals.

How many ARDC funded projects are successful?

Unclear
22.4%

22

Less Successful
6.1%

6

Successful
71.4%

70
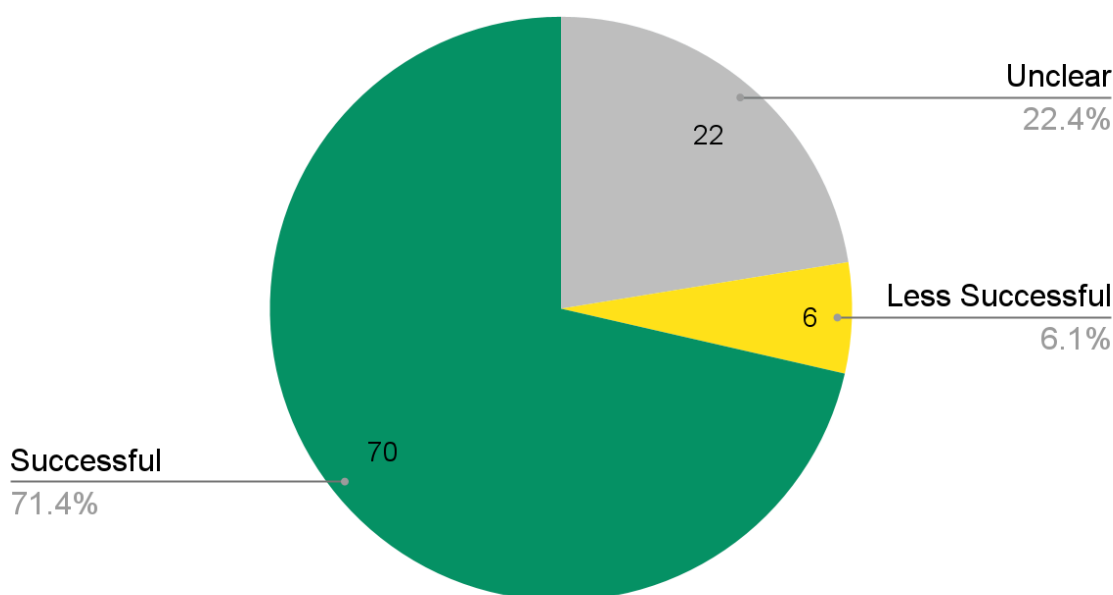
The above chart illustrates how many of the projects we evaluated were considered Successful (71.1%), Less Successful (6.1%), or Unclear (22.4%). For a more detailed view into GET scoring, see [Appendix B](#).

Successful Projects
Medium sized and lower dollar projects (under $50K) tend to have clear, positive outcomes. These projects, often carried out by schools and amateur radio clubs, had surprisingly strong positive impacts for their communities and students. Most - nearly 70% - of ARDC's funded projects are small dollar, small scope projects like these. Our final report collection process is built adequately to capture outcomes from these small dollar projects. In the section of this report focused on fostering future success, we discuss in detail which projects the GAC and board can target to continue these impactful investments. In addition to these projects, we had a number of larger successful projects, especially those focused on education. In total 71.4% of our funded projects were clearly successful.

Less Successful Projects
The GET found no evidence of any individual ARDC grantees doing a "bad job." The GET was impressed to see that grantees generally spent funds appropriately, performed quality work, pivoted in strategy when needed, and learned from challenges. Some projects were classified as "less successful" (6.1%) because they did not clearly advance ARDC goals to a high degree

when compared to other projects. Most of these projects were amateur radio infrastructure projects that did not have a clear impact on local community members. This does not mean that a grant was ineffective or a waste.

One example of this is a project that had a strong primary focus on emergency communications. The GET rated this project as unsuccessful at meaningfully advancing amateur radio due to a lack of outreach and community engagement. Equipment was put into place that will now benefit the area, but amateur radio operators are not necessarily using the equipment on a regular basis. At the same time, the funded group was satisfied that their community is now safer due to better emergency infrastructure. In this way, a grant may not succeed in advancing ARDC's goals, but still have a significant positive impact.

Grantees frequently self-identified COVID and supply chain issues as common challenges that sometimes made them feel that their projects were less successful than they hoped to be. This was particularly true for grants that were active between 2020 and 2022.

Unclear Outcomes
The final reports submitted to ARDC were of widely varying quality, in large part because of the variety of projects and how open-ended our instructions have been. Varying grantee experience in writing grant reports also likely played a role. The GET identified a number of areas where we can improve our final report processes to get better data on the "unclear" outcomes.

We learned through our evaluation that our final report collection process does not adequately prompt a grantee to provide all the information needed for a complex, multi-part or multi-year project. Large projects often received more critical evaluations because the GET wanted more in depth information, resulting in more mixed or unclear outcomes. The purpose of gathering more detailed information would be focused on more meaningful learning, as opposed to compliance. In total 22% of projects had unclear outcomes.

One process recommendation to address this is to have two tracks for final reports - one for small projects and one for large projects. Large projects would be prompted with more questions and expected to provide more detail. Large projects may require individualized follow up from staff with the assistance of volunteer subject matter experts.

Effective Project Selection
One important finding was that **the Grants Advisory Committee (GAC) does an excellent job of predicting which proposals are likely to succeed.** The GAC is a group of volunteers who reviews grant proposals sent to ARDC and recommends which proposals for funding to the board. Of the proposals that got all strong-accept votes from the GAC, 84% were successful. Of the proposals that got middling scores from the GAC, only 46% were clearly successful. This is driven by research and development projects that received lower enthusiasm from the GAC to begin with, then resulted in unclear outcomes. This does not necessarily mean that these are

ineffective or less successful projects. Instead, these grantees may struggle with written communication - their proposals are not as strong, and neither are their final reports. Follow up with these grantees could clarify both their intended outcomes and if those outcomes were met.

Fostering Future Success

The GET identified three main levers for ARDC to continue to foster success:

1. **Picking the right projects:** selecting projects that are likely to succeed.

2. **Collecting the right information:** implementing reporting processes that encourage measurable success.

3. **Sharing back:** facilitating peer learning from past project outcomes and experts.

Picking the Right Projects

The following is information for the Grants Advisory Committee and board to consider when assessing which projects are likely to be successful. Insights are organized by project type.

Amateur Radio

- Projects that create museum displays about amateur radio or that present exhibits at major events seem especially effective at reaching large audiences.

- Projects doing earth-moon-earth (EME) are relatively low cost but have potential for outsized impact for generating interest in amateur radio.

- Small dollar projects for radio clubs to do routine activities can have a big impact for engagement with amateur radio.

- The most effective infrastructure improvement projects include a strong outreach component with tracked metrics to show if more people get engaged as a result of the project. Coverage is not a sufficient metric of success. Coverage may expand, but equipment can sit unused or only minimally used. Most clubs may need assistance or education to know how to effectively do outreach.

- Amateur radio and education projects that include a plan to more formally evaluate their own success ought to be prioritized for funding. For example, camps and licensing classes that make a commitment and plan to survey participants and solicit feedback ought to be prioritized. Most groups do not do this kind of assessment, and results from the ones that do can be used to inform how we understand these kinds of projects and to educate others, since not all groups are well positioned to do this work.

- Groups may or may not have funds for future part replacements. The GAC may want to consider whether groups need a financial plan for assets purchased to be replaced once those assets are beyond their economic life.

Education

- Youth-oriented amateur radio projects have particularly strong outcomes. A majority of the youth projects that the GET looked at have clear, positive results that tightly align with our mission. These projects do not need to be particularly expensive, and projects at both small and large scales have been effective.

- For universities, senior engineering design projects had a particularly strong depth of educational impact for only a few hundred dollars. Senior design projects are also often underfunded at their institutions.

- Supporting teachers in the sciences to incorporate amateur radio is an exceptionally valuable opportunity for student engagement. Clubs don't always have the education knowledge to reach students as effectively. Teacher interest is rare and worth encouraging.

- In aggregate, ARDC's grantees are doing an excellent job reaching youth, and many target women. Fewer ARDC-funded projects target groups underrepresented in amateur radio with regards to race/ethnicity.

Scholarships

- The GET saw scholarships that didn't have an amateur radio component as a mission-fit issue and had trouble assessing if they were successful. Sharing further guidance from the board with volunteers and the public may clarify this issue.

- In Europe, university tuition is generally free or low cost. In Africa, Asia, and South America, there is a need for scholarships. It may be worthwhile to focus scholarship dollars in these regions internationally.

- US-based scholarship programs may not be set up for an international audience, thus these scholars may be better reached via other organizations with the skills to effectively communicate to international audiences. For example, GPA is not a metric used in other countries, but this is required on some applications.

- The GET had significant praise for supported scholarship programs' reach and effectiveness despite the lack of a tie to amateur radio. If ARDC moves in the direction of eliminating scholarship funding to non-amateur radio related institutions, the problem of inclusivity with regards to race is likely further exacerbated.

Research and Development

Research and development projects may benefit from reporting questions specific to this category. A majority of research and development projects had outcomes that may best be explored in depth by having project leads discuss their progress with a subject matter expert.

For many R&D projects funded early on in ARDC's grantmaking, the tie to our mission seems less clear than recently funded projects. This is a result of ARDC narrowing focus as demand for project funds has increased.

- Websites where R&D project results are documented are often taken down quickly after a project closes. ARDC can encourage applicants to publish materials on sites that are unlikely to go away, like GitLab. Additionally, ARDC can request details of publications and screenshots of project web pages, preferably making those materials available on our web site when they may be useful to the public.

- Projects that are effectively restricted to commercial frequencies, except where the project just relies on hardware using those frequencies, are not the best use of funds. For example, one organization proposed developing/expanding wireless modeling software, and was intending to add WiFi. They then pivoted to 5G and LTE IoT protocols, essentially making the tool only useful for the telecommunications industry.

- When considering which research projects to fund, consider that a major research university may have better connections to industry and other funders. Small universities and historically Black colleges and universities receive disproportionately low levels of funding, meaning ARDC dollars go further.

- Bounties need to come with clear procedures to prevent misuse of and / or significant redirection of funds. No misuse of funds was identified in this evaluation, but the possibility is a risk that ARDC can avoid by setting policy requiring responsible fund management.

Collecting the Right Information

ARDC can improve our processes to better collect the information most important to us. Small tweaks to our final report questions and more involved interventions like developing closer relationships with grantees can help ARDC better understand the impact of grant dollars.

Opportunities for Immediate Improvement
- Add examples of both good proposals and good final reports to our website. This will hopefully help grantees know what is expected of them. (DONE)

- Incentivize grantees to provide audio, photos, or a video walkthrough at the end of the project by offering to elevate their work on our website and expressing that these materials are preferred. (DONE)

- Update the grant application form to ask how outcomes will be measured and what difference the project is trying to make. This will make it easier for the grantee to assess at the end of they reach their original stated goal. (DONE)

- Update the final report form to ask grantees to compare outcomes to their originally stated goal. Prompt the grantee to describe how unexpected project changes impacted outcomes. (DONE)

These process changes have been made, and will be monitored in coming months to see if they result in better information collection and more clarity/ease for grantees.

Suggested Steps for Process Improvement
These would require significant staff time or technology changes.

- Staff will ideally review and respond to final reports when they are submitted, rather than waiting to review in batches. This would enable ARDC to take action to resolve issues and follow up with the grantee on project-specific questions to better understand impact. Volunteer subject matter experts can assist staff in understanding final reports. Effort can be focused on high-dollar projects to make the workload manageable. This has been a goal of staff for a while, but the large volume of reports makes this a challenge under the current work structure.

- Curate the final report form based on the dollar amount funded and type of work proposed. For example, R&D projects have more questions to answer than a simple repeater project. In the first case, the final report serves many purposes for internal learning and potential communications. In the second case, the final report can be very brief and serve as a compliance check.

- Airtable (the software currently used to collect final reports) is not the best tool for the job. Future final report collection will happen in Hypha (our grant application software) to make it easier to view and document project and budget changes. Final report requirements will continue to support and encourage formats other than written documents. Keeping reports in the same software as our applications will make it easier for the GAC, the GET, staff and grantees to find the information they need in a user-friendly manner.

Ideas for Future Consideration
These ideas may require more thought around ARDC's overall evaluation and grantmaking strategy.

- Develop a plan for tracking longer-term impact of grants. For example, a museum display may open, and that may be when ARDC gets the final report. A year after the project closes would be a better time period to understand long term visitation.

- South America, Africa and Asia are currently underrepresented in ARDC's grant making. This can only be changed with a more aggressive, targeted outreach strategy. A first step might be to set up regional points of contact or "ARDC ambassadors" who can reach out to their regional organizations, attend fairs, ham meetings and conferences, publish articles in local communication media, etc.

- The US has many territories in the Caribbean and the Pacific, including Puerto Rico, Guam, and Saipan that ARDC may be able to target to expand grant making with minimal cost.

Sharing Back

Grantees often struggle with measuring their own success, creating effective marketing plans, and doing outreach. In their final reports, grantees are asked to share what advice they would give to others hoping to do similar work, and some have found effective ways to overcome these common challenges.

ARDC staff can share these results back with grantees and the public to close the loop on learning and leverage successes. The format for this information sharing could include blog posts, newsletter articles, individual advice to applicants, and discussions during our grantee gatherings.

Where there is a recurring gap in knowledge, such as how to create a marketing plan, ARDC may want to consider recruiting volunteers or providing funds to experts to create resources specifically for the amateur radio community.

The below is a few highlights on topics and information where grantees could benefit from additional information sharing:

- How to work with youth and keep their interest.
- Managing risk for project planning.
- Best practices for outreach.
- Identifying and tracking indicators of impact.
- How to create a press release and other common marketing materials.

Conclusion: Looking to the Future

Initial results indicate that bringing together perspectives from former reviewers, former applicants, board, staff, and members of the public was an effective way to assess individual project outcomes and ARDC's processes. The GET feels that this process was worthwhile in identifying actionable insights and learnings for ARDC. Staff now have a better sense of whether the grantee's self assessments are credible, and know how to better improve our processes.

The Future of the GET

The GET can be leveraged in the future to address ARDC's needs to:

- Be more responsive to reports coming in so that issues can be addressed immediately.

- Aid in summarizing results and identifying trends.

- Provide accountability by following up on if process improvements work as intended.

- Offer expert assessment of R&D results once more meaningful information becomes available.

At this time, we aim to have the GET continue to meet annually to review information received from final reports. The workload for the GET would decrease in terms of the number of final reports to review, but all GET members would review all reports, providing a better consensus around insights. Future findings reports would likely focus on outliers and individual project outcomes.

At the same time, we would expand the work of the GET to aid staff in following up with key projects throughout the year. GET members may be asked to assess R&D projects and high-priority, high-dollar proposals as they are received. They may act as subject matter experts and aid in drafting communications for the public about the results of these projects.

Lastly, we anticipate that requests for information provided by the board and Grants Advisory Committee (GAC) could be answered by the GET.

Follow Up Questions
We appreciate you taking the time to read about our process and outcomes. Feel free to send feedback or questions to giving@ardc.net. We look forward to continuing to share what we learn and incorporate community input.

Appendix A: GET Volunteers

A huge thank you to our Grants Evaluation Team volunteers who reviewed 99 reports and proposals over the course of 16 weeks!

Ben Greve KO4KVH

Bob Witte K0NR

Darryl Smith VK2TDS

Dewayne Hendricks WA8DZP
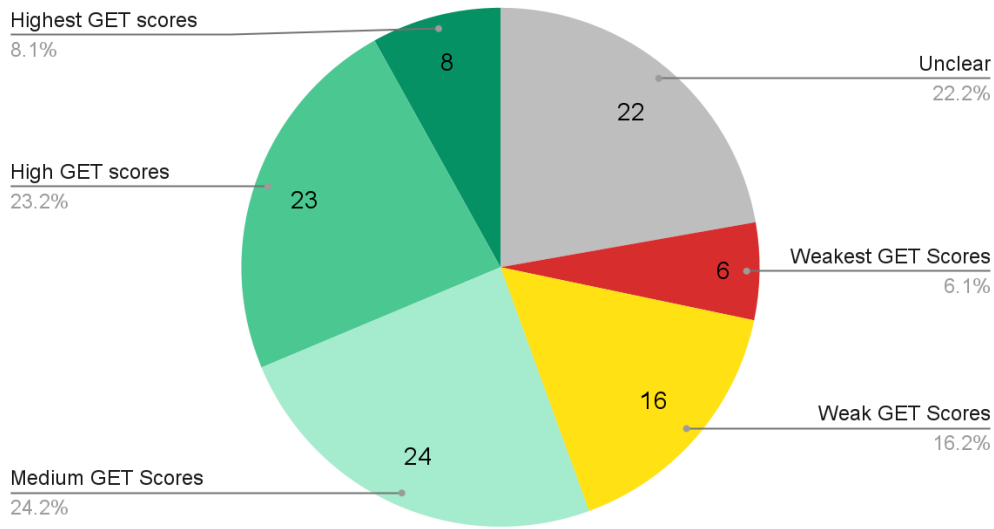
Jaideep (Jai) Chanda VU2YYE

Lad Nagurney WA3EEC

Scott Czeck KC1GHT

Willi Kraml OE1WKL

Appendix B: GET Scores & Success Rating

The GET assessed each individual project and final report across two metrics - was the project successful and was it a good use of funds? Both of these metrics were rated from "strongly agree" to "strongly disagree."

The answers to these two questions were averaged and turned into the information in the chart above. Projects that received perfect scores of "strongly agree" got the highest GET scores. Projects with weak GET scores (in yellow) averaged a "weak agree" score. Only five projects (indicated in red) received average scores of "weak disagree" or "disagree." The number of projects is shown in each pie slice. 99 total projects are represented.

Ranking	Grade Equivalent	Number of Projects	Percentage
Highest GET Scores	A+	8	8.1%
High GET Scores	A	23	23.2%
Medium GET Scores	B	24	24.2%
Weak GET Scores	C	16	16.2%
Weakest GET Scores	D	6	6.1%
Unclear	?	22	22.2%

The above graphic shows more detail within the "How many ARDC funded projects are successful?" graphic. To better understand these sections it may help to think of them as letter grades. Successful projects received a "passing" letter grade, but varied in quality. Less successful projects did not "pass" the assessment of whether or not they furthered ARDC goals.

- **Highest GET Scores = A+.** These were exemplary projects that had greater impact than anticipated. For example, a scouting camp with exceptionally strong programming invested significant effort in surveying campers to maximize learning outcomes, and producing a report on their findings for other scouting groups to use.

- **High GET Scores = A.** These projects were above average at advancing ARDC's goals. They may have offered innovative solutions, were particularly cost effective, discovered something new, did a great job engaging their communities, or were particularly effective at achieving their goals. One example is an amateur radio outreach project that effectively managed a large number of volunteers.

- **Medium GET Scores = B**. These projects had positive impact that advanced ARDC's core goals. They did not have exceptional outcomes and may have learned from challenges, but overall had results tightly aligned with our mission.

- **Weak GET Scores = C.** These projects advanced ARDC's goals to a modest degree. They may have run into significant challenges that limited success, or had minimal, but still positive impact. In other cases, the program itself may have achieved it's goals, but those goals may be more weakly aligned with ARDC's. For example, general STEM education programs without an amateur radio or digital communications component were funded early in ARDC's grant making. At this juncture, we do not see those projects as strongly advancing our goals.

- **Weakest GET Scores = D.** These projects did not demonstrate clear evidence of advancing ARDC's current goals. In most cases, these were emergency communications infrastructure projects that did not show regular usage by the local community, or meaningful outreach to the community while the project was implemented. Despite these limitations, these projects provide helpful infrastructure to their local areas and the groups carrying them out self-assessed their projects as successful. ARDC does not consider these projects to be a waste of funds, but would prefer to focus funding on those with stronger outreach components. In one case, an education project piloted a new licensing class. The program was unable to achieve any of its goals because the content of the class was taught in a way that was far too advanced for the age and educational level of the students.

- **Unclear = ?.** More information was needed to fully assess these projects. The fact that outcomes are unclear should be taken as evidence of an area for improvement in ARDC's final report collection process, as opposed to a negative reflection on the project itself. Identifying these projects was useful in terms of narrowing down how we can better build our requirements to work with them.

The above grading and pass / fail system shows how the original data was translated into the chart indicating general success (also seen on page 5):

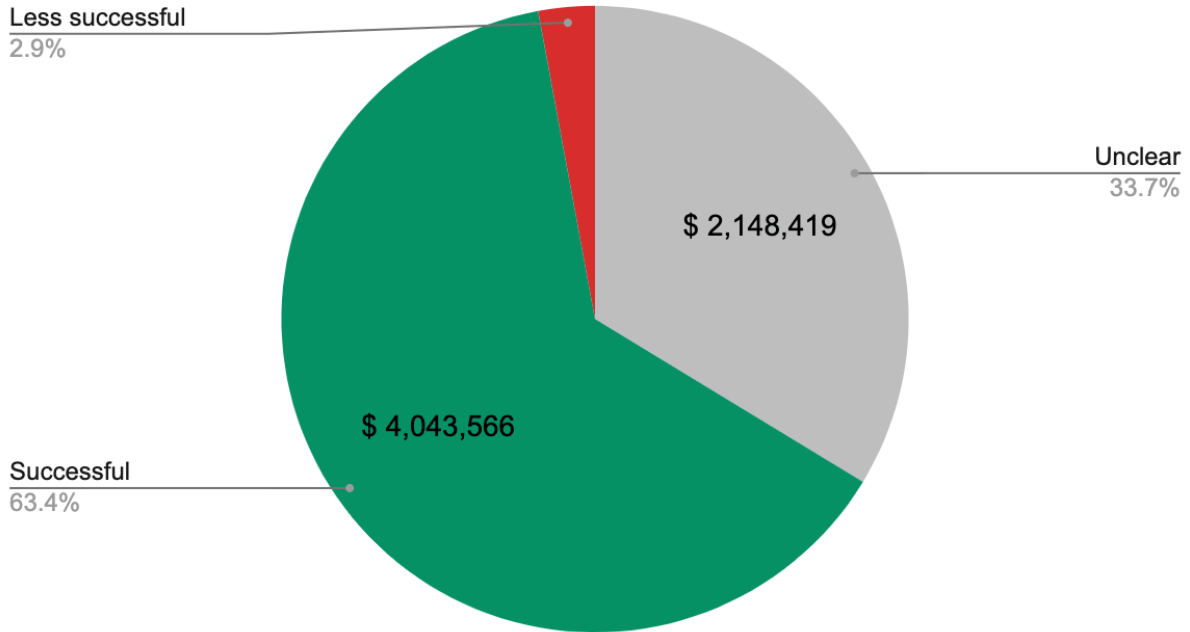How many ARDC funded projects are successful?
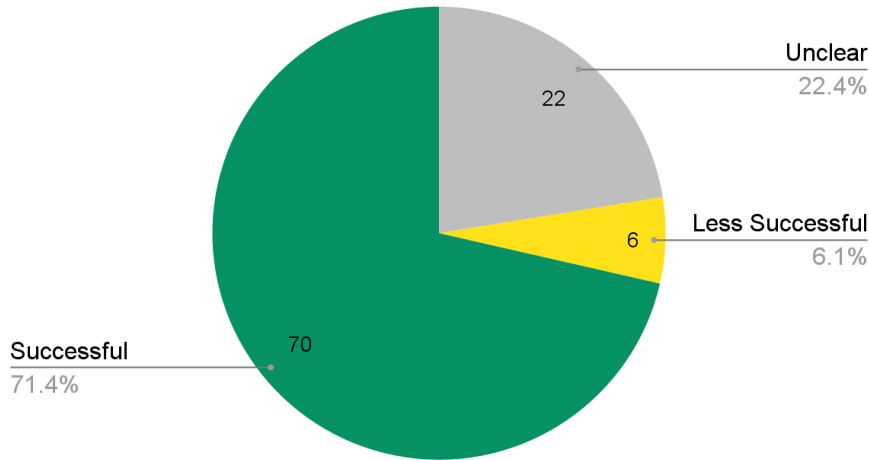
Here is the chart of detailed GET scores again for reference:
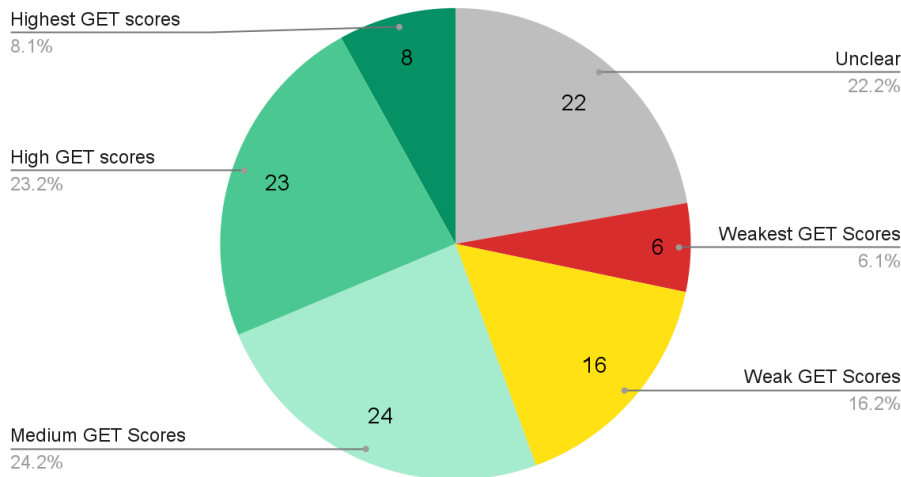
Appendix C: Success & Spending

How many ARDC funded projects are successful? (By dollars)

Less successful
2.9%

Unclear
33.7%

$ 2,148,419

$ 4,043,566

Successful
63.4%

The above chart shows the evaluated projects broken down by total number of dollars given to each pass / fail success rating. The "unclear" category represents a larger proportion, reflecting the fact that projects with unclear outcomes were often large, multi-part, multi-year projects. Steps are being taken to better assess projects like these and collect better information on their work. In this case, the "less successful" category represents $185,138.

Success Level	Dollar Amount	Percentage
Successful	$4,043,566	63.4%
Less successful	$185,138	2.9%
Unclear	$2,148,419	33.7%

Appendix D: GET Scoring Detail by Funding Area

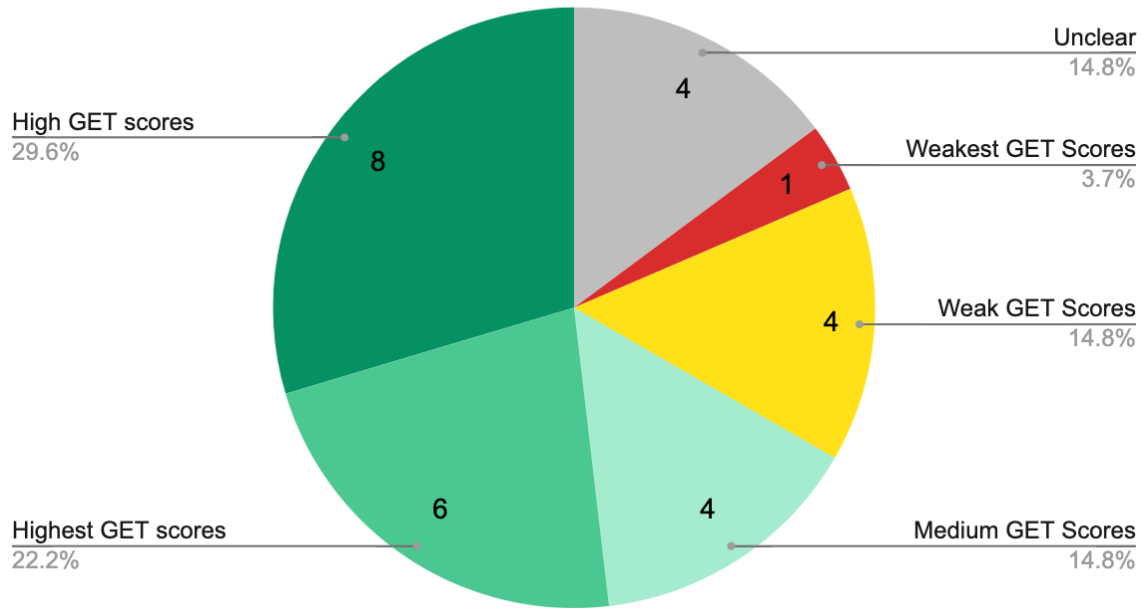## GET Scoring: Amateur Radio Projects
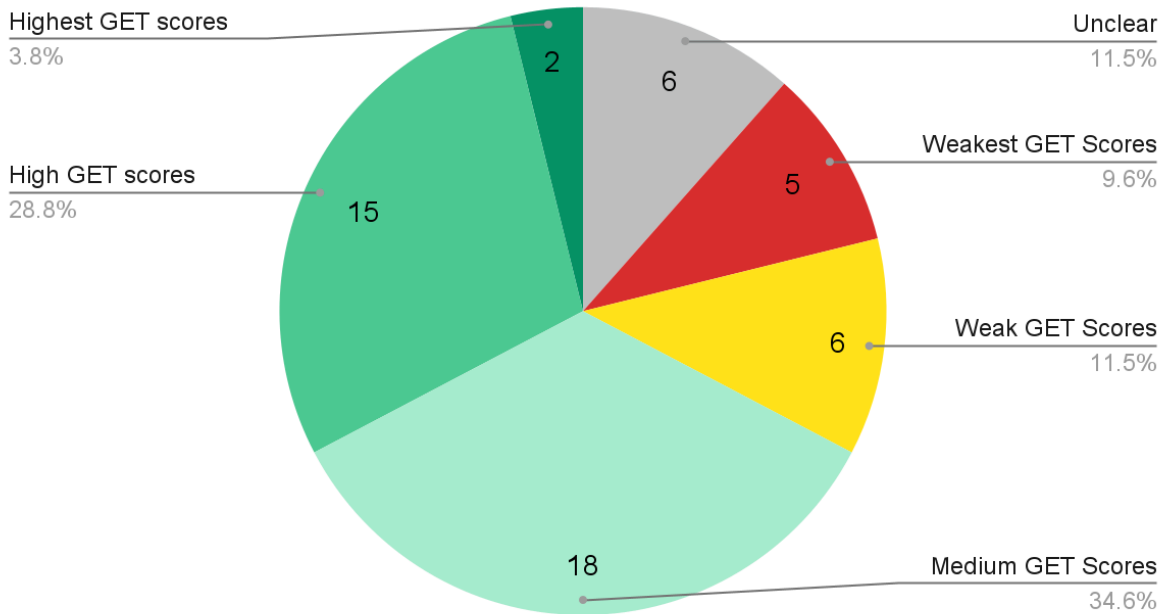
Amateur radio projects made up the bulk of the reports reviewed and had generally favorable ratings from the GET.

| Ranking	Number of Projects	Percentage
Highest GET Scores	2	3.8%
High GET Scores	15	28.8%
Medium GET Scores	18	34.6%
Weak GET Scores	6	14.8%
Weakest GET Scores	5	9.6%
Unclear	6	11.5%

GET Scoring: Education Projects

Education projects tend to check the box on most, if not all, of ARDC's goals, and overall got the highest scores from the GET.

| Ranking	Number of Projects	Percentage
Highest GET Scores	6	22.2%
High GET Scores	8	29.6%
Medium GET Scores	4	14.8%
Weak GET Scores	4	14.8%
Weakest GET Scores	1	3.7%
Unlcear	4	14.8%

GET Scoring: Research & Development
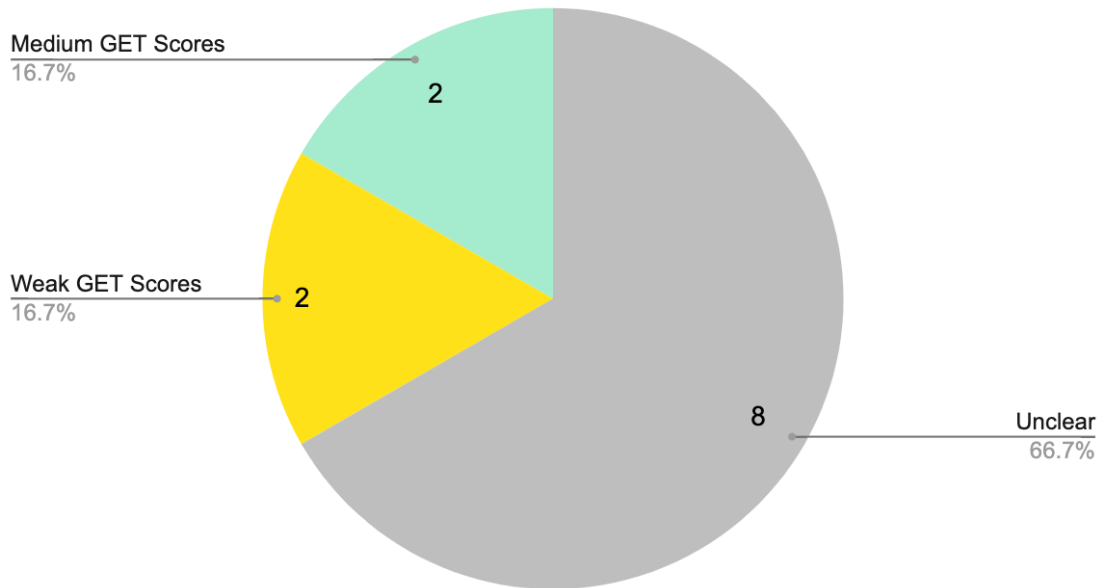
Research and Development projects require individualized follow up and final report questions to fully assess outcomes. The GET recommends a more customized, relationship-based approach for future projects. These results should NOT be seen as a failure on the part of the grantee, but as a flaw in our system of data collection. Research and development projects often self-assess as successful at meeting their goals, but detailed outcomes and how effective they are at advancing ARDC's mission are less clear. A number of strategies to address this issue are detailed above.

Ranking	Number of Projects	Percentage
Medium GET Scores	2	16.7%
Weak GET Scores	2	16.7%
Unclear	8	66.7%

GET Scoring: Scholarships

Weak GET Scores
50.0%

Unclear
50.0%
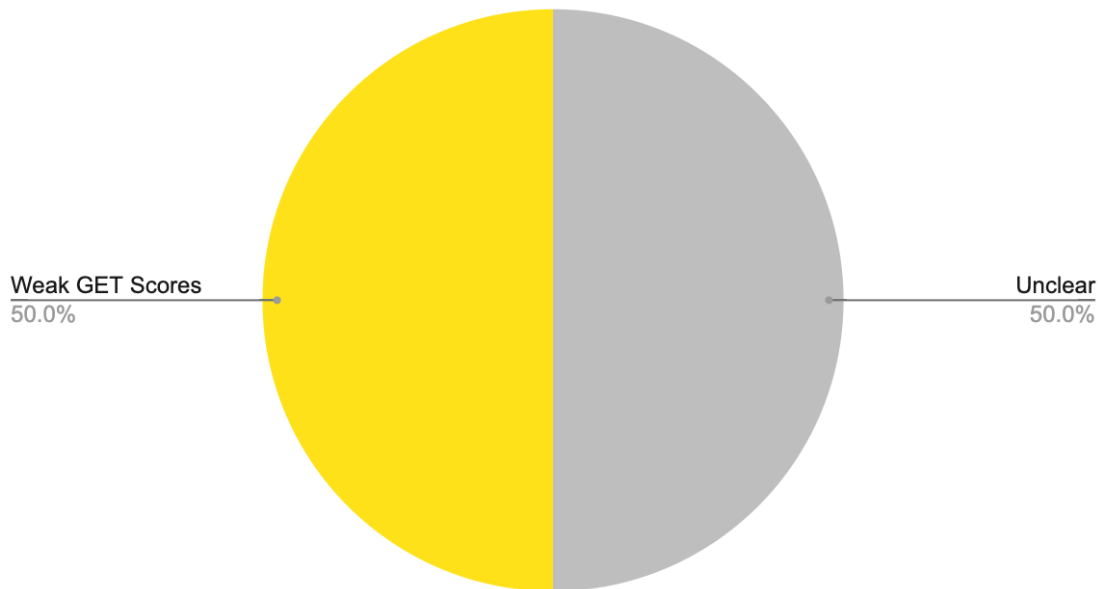
The scholarship programs were 100% effective at providing funds for education and additional educational support for students. GET members saw these projects as excellent programs that clearly have a life-changing benefit for students. However, they recommend providing additional guidance to scholarship programs on what ARDC hopes to achieve through scholarships and how these programs tie to our goals to make this kind of evaluation more applicable. Based on information published for the public on our mission and goals, it was unclear to the GET how to assess scholarship programs as advancing our mission. As a result, 50% of our scholarship programs had weak GET scores, and 50% had unclear outcomes.

Scholarships that went to students interested in amateur radio and digital communications who were pursuing fields of study relevant to our work were seen as most effectively advancing our mission. Similarly, scholarship programs that promoted or made students aware of amateur radio were also more clearly linked than those that did not. Scholarships for students at particular schools were seen as less successful in fulfilling our open access requirement than those that any student at any school could apply for.

At the same time, targeting specific schools or programs that did not have an amateur radio component allowed ARDC to fill in the gaps with regards to the range of students and majors we had hoped to reach. For example, a scholarship to Washington Women in Need reached low income women studying in technical fields that may advance radio technology or digital communications, but did not promote amateur radio directly.

Appendix E: GET Score by Proposal Year

Year Proposal Was Submitted	Average GET Score (1 - 5)
2020	3.37
2021	3.54
2022	3.81
2023	3.96

As may be expected, projects that began more recently align more closely with our current goals. As ARDC has become more well known, applications have become more competitive, we have refined our goals, and we have improved how we communicate about our expectations. As a result, projects that occurred more recently were more likely to get a high success rating from the GAC than those that began early in our grant making.