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Maker Research Project
Preliminary Findings and Themes from Maker Interviews

The following is a collection of major themes identified in the first phase of the Maker Research Project. These themes were identified by applying qualitative analysis methods to interview transcripts. Methods included a pile sorting exercise and both deductive and iterative coding processes.

Defining "Makers"

"Makers," for the purpose of this project, are individuals and organizations involved in the creation, operation, and impact of public interest technologies. This can include any of the software developers, program managers, product managers, and community builders who work toward the goal of producing a public good technology.

Examples of these technology products could include CRM platform templates that cater to the specific needs of various nonprofits, or apps that provide online services to vulnerable populations (e.g., homeless services directories or the Shelter[1] app, which links homeless and low-income individuals to shelter resources).

The term *Maker* is intended to be a cross-sector, cross-disciplinary term that encompasses the designers, owners, program managers, and developers of public good technology. The term is meant to be used in the broadest, most inclusive sense while simultaneously referencing the DIY ethos of the larger mainstream "Maker Movement."

Methods and Demographics

The goal of this research study was to investigate the barriers faced by Makers working on tech for social good initiatives. To this end, we conducted semi-structured interviews with a series of preliminary participants which informed the production of our interview protocol. This interview protocol was applied to further semi-structured interviews with 25 individuals from 23 organizations. Of those 23 organizations, 11 were nonprofit organizations and 12 were for-profit organizations. Most of these organizations were relatively small in size, with 1 to 10 employees.

Participants were found by searching for recent or active public good technologies and inviting the owners of the projects to be interviewed. Of the 11 NGOs that were interviewed, 7 were technology-oriented organizations with missions directed at developing public good technology or addressing technology needs in some manner. The remainder had developed some form of public good technology in the pursuit of a non-technology-oriented mission. Participants were all from English-speaking countries.

Themes

Once the interview phase was completed, a card sorting exercise was applied to the transcripts and interview notes, in which ideas and terms highlighted via qualitative coding were grouped together based on topic or related theme. This process was repeated a number of times by different researchers until they reached a consensus. As a result of this exercise, several major themes were identified, which we will explore in this section.

Funding Problems

Participants invested significant portions of interviews discussing difficulties in securing funding via grants and other such sources. Many of the other major themes discussed in this paper stem from this core issue.

Participants who discussed funding difficulties would sometimes expand on this point by indicating how there is a widespread misconception of the scope of work that nonprofit organizations do. These participants state that they believe most people associate nonprofits only with activities such as assisting the homeless or other marginalized groups. This perception results in there being only a trickle of funding available for technology-oriented nonprofits since funders are more interested in investing their money and effort into these traditional mission–driven organizations.

[1] *Homeless Resources — Shelter App*, accessed July 27, 2022. https://www.shelterapp.org/

Technology Literacy

All of the participants interviewed discussed challenges acquiring new clients for their products. They identified difficulties informing others about their technologies — and a general lack of technology literacy in the nonprofit sector — as reasons they struggle to recruit new adopters of their technologies. Participant reasoning for this disinterest in public good technologies stems from a fear that new technologies could result in unforeseen failures. It was also noted that older volunteers and employees of the organizations they seek to serve are considered somewhat averse to learning new technology or processes when "the current solution works."

Problems with Sales

Participants reported difficulty onboarding new users to the products they develop. Some of the reasons for this difficulty include their target users having very little or no budget to pay for the technology products Makers create, echoing the financial difficulties discussed before.

Further, the Makers we interviewed reported very little or no budget for marketing their products and that they rely on conferences, referrals, and word of mouth to make potential users aware of their product.

All participants expressed a need for more robust marketing of their products or services, citing budget constraints as a primary source of this issue. Some participants indicated they have an in-house marketing team. However, and especially among smaller organizations, marketing efforts at nonprofits often fall on team members who may already be overtasked by developing their products or by other essential duties. This is consistent with the common challenge of nonprofit professionals needing to "wear many hats" at their organization.

Our research leads us to believe that technological solutions to issues faced by civil society are undermarketed to potential users who are, in turn, underequipped to understand the use case for the solutions, and who likely can't afford them either way.

Team Development

Talent acquisition and retention is a common issue in the nonprofit sector. Our participants identified difficulties related to employee recruitment as a significant barrier. These are the result, in part, of the inability to offer competitive compensation. However, they also report a strong preference for wanting to recruit individuals who share a passion for their organization's mission and values, which further complicates team development.

Recruitment challenges result in smaller teams, and the individuals on these small teams often feel stretched thin as they fill roles beyond the scope of their position or as they work on tasks that they are unfamiliar with or find unappealing. This creates a negative feedback loop that results in employee burnout.

Cost of Maker Projects

Our participants shared how and where they use funds. Notably, these points were made with very little or no prompting, which highlights a common anxiety or need to justify and report on such things.

Labor and equipment costs were frequently quoted as primary expenditures on our participants' various programs and projects. Labor costs in this case could refer to skilled contract labor to produce websites, write code, etc., or more fixed labor costs related to program oversight, human resources, accounting or other noncontract staff functions. Partially as a result of high labor costs and small budgets, equipment and software needs were said to be somewhat neglected.

Necessary hardware was often inaccessible to our participants, who would use older or outdated computers and other equipment, or simply do without certain items. Additionally, other concerns such as server space and software licenses were mentioned consistently. Amazon Web Services was frequently identified as a solution participants lacked and sought to have access to, or as a solution central to their operations.

Challenges Related to Cost-Cutting Measures

Participants frequently discussed matters related to reducing operational costs at their nonprofits.

Employing volunteers was positioned as a strategy to reduce labor costs. However, volunteers were also said to introduce complications to the production cycle. Participants discussed how volunteer developers were often onboarded to work on a project, only to leave after a short time. This resulted in cohorts of volunteers or developers working on different stages of the projects. Thus, newer groups would not understand the code of the previous cohort, creating failure points in the product

or technology solution that were difficult to address without considerable effort. This pattern of knowledge loss also contributes to increasing the difficulty of maintaining the product in the long term.

Participants also noted that they used the free versions of software when they could or would opt to use less preferred programs with less functionality. This pattern of behavior would sometimes necessitate expensive or time-consuming workarounds to compensate for the lack of functionality.

Impact of COVID-19

The COVID-19 pandemic changed the way many organizations functioned. Nearly every participant discussed the impacts of COVID-19 to some degree. The impacts of COVID-19 included reduced sales or other streams of funding for various reasons, as well as the inability to hold or attend conferences.

However, participants said that the cancellation of in-person conferences wasn't all bad, and that it actually created an

opportunity for some participants to attend more conferences via Zoom than they could have in person. On the other hand, the lack of conferences contributed to difficulties in marketing, peer support, and sales.

Conclusion

Technology-oriented nonprofits face barriers that are somewhat unique to the sector, and the biggest challenge facing technology-oriented nonprofits is funding. As discussed elsewhere, participants point out that there is a lack of funding for technology-oriented nonprofits. This lack of funding has cascading effects, encouraging maladaptive behaviors in some cases. Participants reasoned that part of the reason there is a lack of funding stems from misconceptions about the scope of nonprofit work.

A factor that complicates this situation is that technology development requires specialized skill sets. Makers must therefore compete with the private sector to secure this talent, which they are underequipped to do as a result of the funding issues mentioned throughout this document. Makers attempt to sidestep this issue by securing volunteer developers. These volunteer developers, while essential in many cases, also introduce issues that contribute to the aversion to new technology that participants report in the market. This is a result of a lack of follow-through and longitudinal support for products developed by cohorts of these volunteer developers (i.e., once a product is made, it is poorly maintained or updated after the volunteers move on).

About This Document

This document was written by Nicholas Romano in November 2021 and edited in January 2022 by Darin Harrison for a general audience. It was based on coding interview materials from interviews that were conducted between May and November 2021.

Bibliography

Homeless Resources — Shelter App, accessed July 27, 2022. https://www.shelterapp.org/