

Lessons for future projects



Technical Challenges

1. **TECHNICAL DIFFICULTIES ARE TO BE EXPECTED.** Setting up a new hardware is not like setting up software: when something goes wrong, the entire device may have to go back to the drawing board. Delays are common and costly. This should be expected and understood, and even built into the project design, with adequate developer time to work out bugs in the software as well as hardware. At the same time, software problems also require attention and resources to work out which became an issue for this project as well, which often relied upon volunteer backup technical assistance.

2. **REDUCE TECHNICAL KNOW-HOW REQUIRED FOR YOUR DEVICE: SIMPLIFY.** The project demonstrated that it's important to aim for the everyday potential user as soon as possible. The prototype, while mass-produced, still required assembly and a slight learning curve for those not familiar with its components, and also needed some systems maintenance in each location. Internews plans for the DustDuino's next stage to be more "Plug-and-play" - most people don't have the ability to build or troubleshoot a device themselves.

3. **CONSIDER DATA SYSTEMS IN DEPTH .** This project suffered from a less well-thought-out data and pipeline system, which required much more investment than initially considered. For instance, the sensor was intended to send signals over either wifi or GSM, but the required code for the device itself, and the destination of the data shifted throughout the project. Having a working data pipeline and display online consumed a great deal of project budget and ultimately stalled.

4. **PRIORITIZE DATA QUALITY.** The production of reliable data, and scientifically

While setting up a deployment at a news stand, Gustavo Faleiros of InfoAmazonia, used the poster to explain the aims of the project.

valid data, also needs to be well planned for. This pilot showed how challenging it can be to get enough data, and to correct issues in hardware that may interfere with readings. Without this very strong data, it is nearly impossible to successfully promote the prototype, much less provide journalists and the general public with a tool for accountability

Implementation Challenges

BE INTENTIONAL: DON'T UNDERESTIMATE THE NEED FOR IMPLEMENTATION FUNDING. It is often the case that software and hardware development use up the majority of a grant budget, while programmatic and implementation or field-based design “with” processes get short shrift in the inception phase. Decision making about whether to front-load the technology development or to develop quick but rough in order to get prototypes to the field quickly, as referenced in the narrative, should be made intentionally and consciously. Non-technical partners or team members should be aware of the incentives present for technical team members to instinctively emphasize technical development over equally critical local engagement and field testing processes.

FUNDING PARALYSIS. The anticipation of a need for future funding dominated early conversations, and led to a typical problem with pilots: funding available tends to skew to piloting with no follow up funding opportunities for successful pilots, leading to the conundrum that before the pilot even produces its results, organizations must begin to source other funds. That means they must allocate resources to business development as well, which can be difficult if not impossible, and face pressure to create marketing materials and other PR pieces. This can also in some cases (although not with this pilot) lead to very premature claims of success and lack of transparency. During this project, there was some disagreement among team members about how much to use this pilot fund to support the search for further investment, almost as a proposal development fund, and how much to spend on the actual proof of concept through hardware/software development and field testing.

This is a lesson for donors especially: when looking for innovative and experimental work, include opportunities for scale-up and growth funding or have a plan in mind for supporting your most successful pilots.

TEAMWORK. A consortium project is never easy. A great deal of time is required simply to bring everyone to the same basic understanding of the project. This time should be adequately budgeted for from the start. Managing such a team is a challenge, and experienced and very highly organized leadership helps the process. FrontlineSMS (which received and managed the funding from Feedback Labs) specifically indicated they did not sufficiently anticipate this extensive requirement. Also, implementing a flat structure to decision making was a huge challenge for this team. Though it was in the collective interest to achieve major goals, like follow-on funding, community engagement, and a working prototype, there were no resources devoted to coordinating the consortium nor any special authority to make decisions, sometimes leading to members operating at

cross purposes. Consistent leadership was lacking, while decision-making and operational coordination were very hard given quite divergent expectations for the project and kinds of skills and experience. This is not to say that consortium projects are a poor model or teams should not use a flat structure, but that leading or guiding such a team is a specialty role which should be well considered and resourced.

Part of the challenge in this case was that the lead grantee role in the consortium actually shifted in 2015 from FrontlineSMS to SIMLab, its parent company, when the FrontlineSMS team were spun out with their software at the end of 2014. The consortium members were largely autonomous, without regular meetings and coordination until July 2015, when SIMLab instituted monthly meetings and more consistent use of Basecamp.

COMMUNICATIONS. Set up clear communications frameworks in advance, including bug reporting mechanisms as well as correction responsibilities. Delays in reporting bugs with Development Seed and FrontlineSMS APIs contributed significantly to the instability of the sensors in the field. Strong information flow about problems, and speedy remote decision-making, was never really achieved. At the same time, efficiency in such consortia is paramount, so that time isn't taken from operational matters with coordination meetings - so a balance must be struck. This project eventually incorporated the use of BaseCamp.

Implications for Innovation Funding

While it might have been too ambitious to try for a hardware prototype with two types of connectivity, a documenting website, actual community engagement AND business development, all for \$60k, not to mention the coordination required, it is also true that typical funds available for innovation lend themselves to this kind of overreach. Indeed, a more realistic proposal would have merely stated that the team would work out software and hardware bugs and establish key relationships and processes, clearly only a first step - though a critical one - toward a "feedback loop". However, such a proposal would not be as exciting to donors.

At the same time, for projects which have already come this far - which have a viable product and need to take the next several implementation and development steps - funding is not as easily available. Instead, funders may support a different team to start over from scratch with a similar concept rather than support the crucial yet less "exciting" growth phase of a project. If they do support a growth phase, they may expect the project to generate revenue prematurely.

Consortium projects are another trend that require more consideration. Rather than simply expect a new team to know how to work well together, in spite of differences ranging from subject area expertise, geographical base, to business models to even basic assumptions about development, funders should instead consider direct support (financial and/or capacity) to consortium leadership alongside or as part of project funding. Our analysis of this project highlights the key role played by communication and teamwork, yet hardly ever does a

funder request management plans or demonstrated experience in consortium leadership, nor give special attention and resources to support the collaborative process. The more partners are included, the more difficult the process becomes to the point where there may be a lack of buy-in and ownership of the project overall.

Good practice would be to support innovators throughout the process, including (reasonable) investment in team process (while still requiring real-life testing and results), and opportunities for further fundraising based on “lessons” and redesign from a first phase. As well, an expectation that the team be re-configured, perhaps losing some members and gaining others between stages, plus defining a clear leadership process. Supportive and intensive incubation, with honest assessment built in through funding for evaluations such as this one would go a long way toward better innovation results.

Funders should also require transparency and honest evaluation throughout. If a sponsored project or product cannot find any problems or obstacles to share about publicly, they’re simply not being honest. Funders could go a long way toward making this kind of transparency the norm instead of the exception. In spite of an apparent “fail fair”-influenced acculturation toward embracing failure and learning, the vast majority of projects still do not subject themselves to any public discussion that goes beyond salesmanship.