

HBEC Candidate Starter Kit for Tablet-based Electronic Data Collection

Data collection solutions we're taking to the field as of January 13, 2017



Software: Testing is underway, but per our initial investigations and experimentation, we recommend two open source software packages for data collection, [Open Data Kit](#) (ODK) and [Shiny](#). ODK is a great choice for those without coding experience: surveys can be designed in Excel and implemented using Android tablets or phones. We provide an intro to using ODK, available [here](#). Shiny is more flexible than ODK, though coding experience is basically a must. Both programs allow surveys to be modified offline (e.g., while in the field) and both export data in handy CSV files. For those who prefer paid software with customer support staff, we (or our close colleagues) have experience with electronic data collection via FileMaker Pro (starting at \$329) and Access (\$110); we're happy to talk with you about the pros and cons of these various options.

Tablets: For those looking for an Android tablet (e.g., if you intend to use ODK), we like the [Sony Xperia Z3 Compact](#) (€360/\$410; model SGP621). The Sony tablet is waterproof and has a 15-hour battery life. While we haven't used it in the field yet, we've pushed its battery life in the office, and those specs are accurate. Additional bonuses of having an Android device? The Sony has GPS, of course, and accepts SIM chips. In fact, it can connect to LTE data bands in [many countries where we work](#), which will allow you to back up ODK data to a server if you happen to have a data connection. (2G and 3G are also do-able.) The biggest downside of the Sony is that there are almost no cases designed for the device, so we can only recommend a universal 8" case to protect it in the field (see below). Katie is taking a Sony to the field and will update this review later in 2017.

The market for Windows markets is changing in a way that does not favor fieldwork-friendly tablets. 8" tablets are on the way out, and 10" tablets that are light enough to carry around and easy to cover from the elements are harder and harder to come by. Our favorite is the [Dell Venue 8 Pro](#) (contact European Dell subsidiaries for price): Anne spent 9 months collecting data on it in the Bolivian Amazon in 2014, and John and Caissa are out using it in the Peruvian Amazon at the time of writing. Unfortunately, it is no longer available in the US (except on the re-sale market), and Dell cannot say whether they will continue to have it available in Europe. A model with similar specs, in terms of battery life and processing power, is the [Lenovo Miix 310](#) (\$300). It is still available on the US market. It has a screen that is 2" bigger than the Dell – though increased size is often a detriment, rather than a benefit, in the field, because of portability – and has a detachable keyboard – and, while that may help with rapid text entry, the connection port is another place in which water can enter the device.

Rugged cases: If you purchase the Sony Xperia, we recommend the [Cooper Trooper 2k](#) case (\$20). Does it look like it's for kids? Yes. Will you be interacting with kids, or even being klutzy like a kid yourself? Yes! The case comes with a stand and can be gripped from the back or carried by a shoulder strap, which helps if you're

on the move (e.g., doing focal follows, getting anthropometrics). It unfortunately does not have a screen protector, nor does it keep out water or dust, but recall that the Sony is waterproof, and screen protectors can be purchased separately. The [Targus case](#) (\$50) for the Dell? Tried and true. It protects the screen and body of the device against water and dust (IP54 rating), allows you to drop your tablet on the ground with no trouble (Anne has in-field experience with this one), and has a stand that can be gripped while on the move. If you grab the Lenovo Miix and you work in a less waterlogged place, try [Cooper Trooper's 2k case](#) for 10-10.5" devices (\$20), or, if you work in a more waterlogged place, an [Armor-X waterproof case](#) (\$40; designed for other devices but should work for the Miix).

External hard drive: In addition to backing up your data online whenever you have a chance (e.g., via ODK Aggregate if you use ODK, or Dropbox or similar if you are using a different software package), we recommend backing up to local hardware such as flash drives and external hard drives. You may want to consider backing up to one of each: for example, backing up all your files (including the biggest ones, like videos or 3D scan data) to an external hard drive and only the smaller files (such as surveys, photos, and voice recordings) to a flash drive you keep on your person. External hard drives come with a range of different features; as you are the person most familiar with your field site, you are the best judge of whether you need a really hardy external drive or can get by without the extra bells and whistles. As a happy medium between the most hardy (e.g., waterproof) and the most low key external hard drives, we recommend the [LaCie Rugged Thunderbolt](#) (\$250). This drive is a solid state drive (SSD), which is more forgiving with drops and mishaps than non-SSD drives. It is both Thunderbolt and USB 3.0 versions are available (as well as a version with both!), which at the time of writing are among the most widely-available, fastest ways of moving data between devices. The LaCie Rugged Thunderbolt can also be run over by a small car, dropped from a height of 2m, and rained on. If you don't need *too* much data storage, the price of the 250 GB model won't break the bank.

Powerbank: Even with a long battery life on your field tablet, you don't want to be caught off-guard with a dying battery. Having a powerbank on hand can alleviate that concern. The [Goobay Powerbank 20.0](#) (€40) is a hefty (yes, beware: 430 grams) battery unit that can charge your tablet even while you're using it. If you're outside Germany, the [Anker PowerCore+ 20100](#) (\$40) is similar, and though we have not tested it, it's well-reviewed. (This device is not eligible for purchase by MPI-EVA.) Downside of these 430 gram beasts? It takes a long time to recharge them from a power outlet or solar battery. Try a smaller powerbank for a quick boost for your tablet, rather than a full charge of its battery, and a shorter bank recharge time (e.g., [PowerCore+ 10400](#); \$24).

Solar panel and battery: No electricity, or inconsistent electricity, at your site? Electronic data collection is still do-able if you get some sunlight! The [Goal Zero Nomad 20](#) (\$160) and [PowerFilm R21](#) (\$275) have both been used long-term in the field by members of our department, and we're fully satisfied. The Goal Zero is water resistant – it's been rained on numerous times with no trouble thus far – and fits in a standard daypack (e.g., Jansport-sized backpack). The PowerFilm is designed for sea vessels and is fully waterproof and rollable: you can roll it up and pack it in your checked luggage. We recommend daisy chaining solar panels – either two R21s, or two Nomads, connected together – to charge your solar battery more quickly when it is sunny. As far as solar batteries go, we recommend the [Goal Zero Yeti 150](#) (\$180). The Yeti stops accepting a charge automatically when full (no need for a charge controller) and can charge devices directly through two on-board USB plugs. You will need to use an [RA16 adapter](#) (\$15) to use PowerFilm panels with the Yeti.