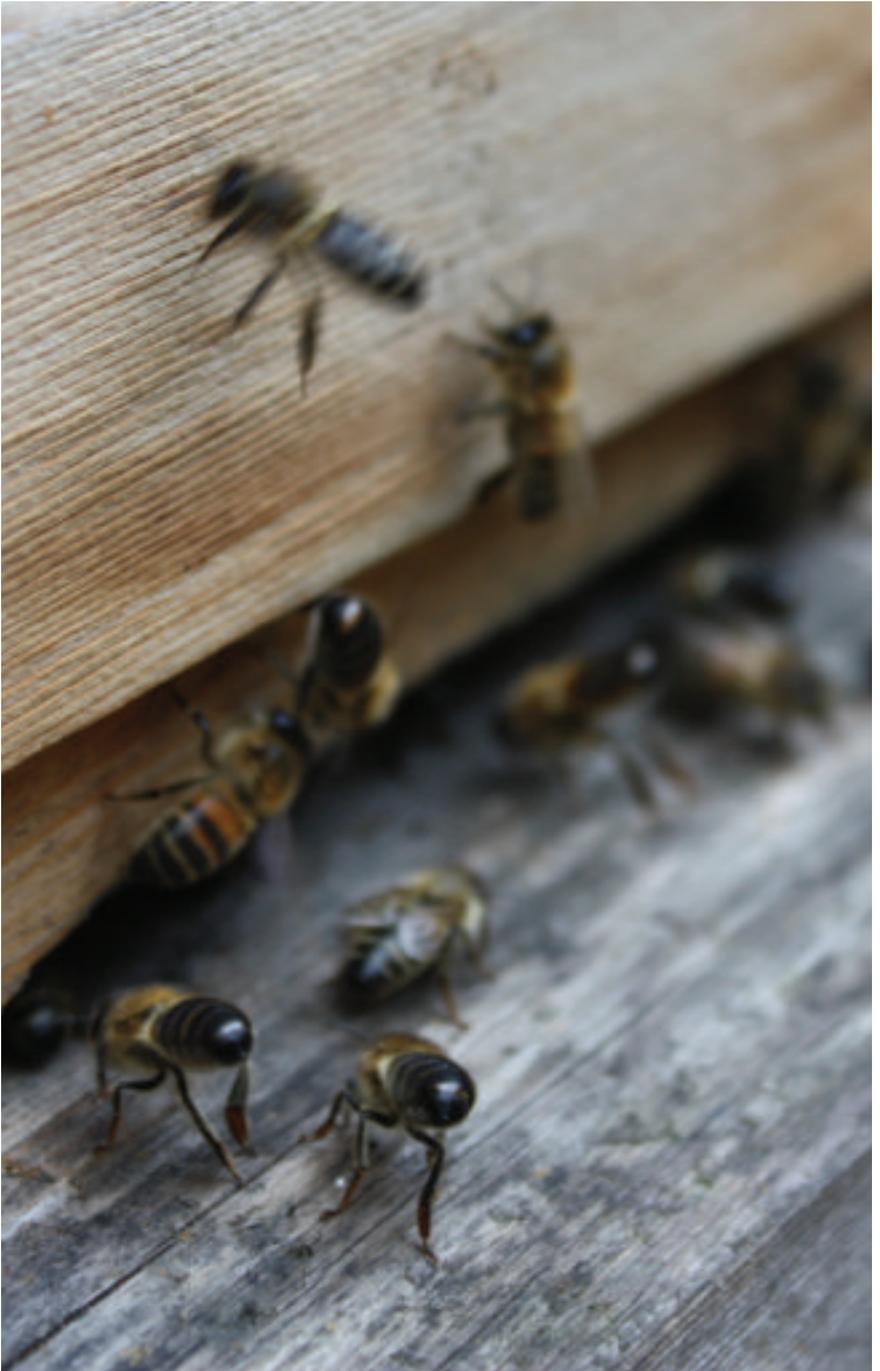


# BEE LAB



*Understanding the territory of design.*



*Deploying the Bee Lab Kits with beekeepers.*

# Bee Lab

Across UK

## Contributors

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Design Products  
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**W** *The British  
Beekeepers'  
Association*  
[bbka.org.uk](http://bbka.org.uk)

**W** *The Honey Club*  
[honeyclub.org](http://honeyclub.org)

**W** *Technology  
Will Save Us*  
[techwillsaveus.com](http://techwillsaveus.com)

**W** *Horizon Digital  
Economy*  
[horizon.ac.uk](http://horizon.ac.uk)

**W** [beelab.org](http://beelab.org),  
[rdphillips.co.uk](http://rdphillips.co.uk)

**T** [@beelab\\_open](https://twitter.com/beelab_open)

## Digital Tools Used

Open-source  
electronics,  
Prototyping kits  
from  
[techwillsaveus.com](http://techwillsaveus.com),  
Twitter.

**Bee Lab is a project about enabling the beekeeping community to enhance care for bees, by harnessing the power of open design, DIY technology and citizen science.**

## About

The Bee Lab project aims to use the power of technology and Open Design to enhance the practice of beekeeping—making it easier for beekeepers to care for bees in today's unpredictable environmental landscape. Using the principles of Open Design, we are bringing together a community of passionate, multi-disciplinary people to create customisable monitoring devices that enable beekeepers to monitor and share the health of their bees across the beekeeping community.

Honey bees are an essential environmental pollinator. They contribute every day to our environment, food supply and our economy. However, the practice of caring for bees has become increasingly complicated over the past 15 years—uncertain climate, sprawling cities, weather diversity, GM crops and disease management have made life difficult for bees and beekeepers in both urban and rural settings. We believe that by harnessing the sense of community instilled in the beekeeping world, and empowering people with appropriate technologies, we can help beekeepers enhance care for their bees.

We put on a series of 'hackdays'—collaborative, practical technology workshops—bringing together technologists, product designers and engineers to work with the beekeeping community to co-create customisable, monitoring devices that can be inserted into hives to sense different signals for the beekeeper to read—including frame or feeder weight, whole hive weight, temperature and humidity. The idea is that the more that the bees can communicate to their beekeeper, the more the beekeeper can understand and respond to them without even opening up the hive.

### **What was the impact of the project?**

The project's still ongoing, but so far Bee Lab has involved and reached beekeepers in the UK and around the world, and been shown publicly at the Victoria & Albert Museum in London.

### **How did digital tools make a difference?**

Low-cost digital electronics, open-source technology and the growing 'maker community' have helped enable many more people to become involved in being part of citizen science projects. What would once have been the preserve of scientific laboratories is now available and accessible to the public, and can be used in creative ways.

### **What next?**

Using 'open design' methods, the device designs will be published online - free to be used and 'hacked' by anyone. Data gathered from these devices will be made public to help others understand the health of their local environment, informing sustainable and bee-friendly approaches.

# What Others Can Learn

## **Create project champions**

Empower individual people to become advocates for the project. They will be more powerful and influential within their community than any external researcher or organisation. Give these advocates the resources to describe and recruit people to the project, as their input will be more powerful.

## **Listen to desires, not technological opportunities**

Throughout the project, we ran 'territory scoping' workshops and 'deployment in the wild' with our user base. Beekeepers freely expressed their desires for technological uses and applications; these have been vast and critical. Whilst technological interventions are exciting for industry, and can be very creative, make sure that these align with end users' needs and are not over-complicating a simple exercise.

## **Open 'Design' or assembly**

Designing artefacts and systems takes time and relies on expertise to deliver tangible, economic results. If you are engaging audiences to create or design 'openly' then carefully consider the stages where they are 'designing'. What is the user's skill base? Do they need support or resources? What is the output and are validation procedures required? When opening a process or product creation consider the audience and design material carefully.

## **Always think motivation**

During the 'recruitment' parts of the project, educational institutions and community groups that we never thought we would engage with have come forward. Deploy your projects within different communities and allow them to self-select. Always consider that community-based projects are not just about the 'project', but about what individual participants yield for themselves. Try to align these personal end user needs with those of the community.