ARTEFACTO

The Makerspace
Starter Guide

Ideas for launching, relaunching
and reimagining your library makerspace

About
Artefacto

What we do

Artefacto is a dedicated team of creative technologists, librarians and makers. We create innovative digital projects and services including user-centred websites, apps, online learning, makerspaces and interactive digital experiences.

We've worked closely with libraries across the UK on their Maker programmes, providing advice, support and training.

We believe that the best products and services are ones that are driven by users themselves. Giving users a voice results in better services for everyone.

hello@artefacto.org.uk
artefacto.org.uk
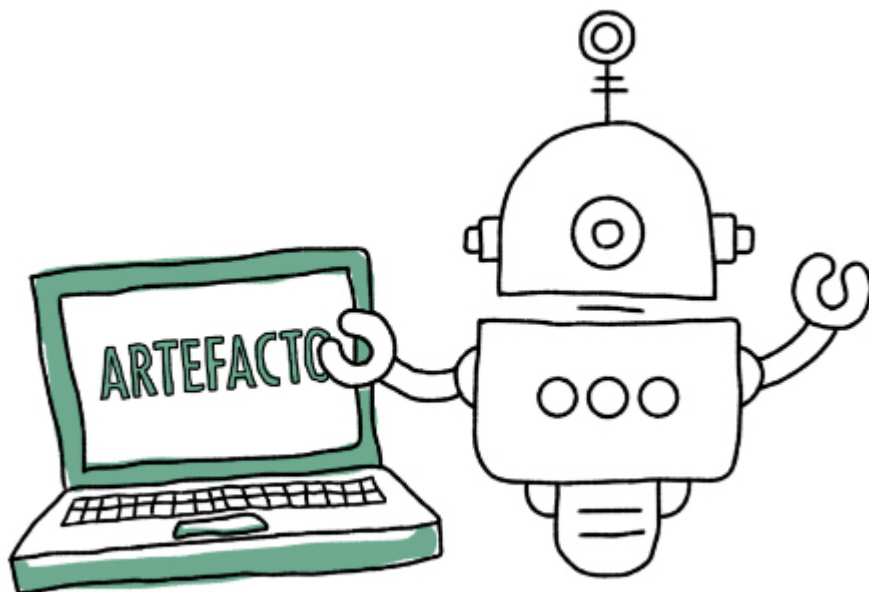
About
this guide

This guide builds on many conversations and other kinds of inspiration we've gained from makerspaces and creative technology initiatives around the world.

It is a collaborative resource designed to inspire and encourage you to level up your own makerspace in a way that works best for your users.

We share tips and advice that we've gained from supporting libraries across the UK over the past 5 years and from our own experiences as makers, technologists and workshop facilitators.

This is an inspiration list rather than a rulebook - a place to start and to build from and a few resources that will hopefully save you some time. We want to share some practical information to help you create and manage a makerspace that's right for your library service.

What you find in this guide:

- When and why to create a makerspace
- How to launch a new space or new service
- Making decisions about tools and equipment
- Involving staff and supporting your makerspace
- Delivering a lean, user-driven makerspace programme

Happy Making
Artefacto team

When and why
to create a makerspace

What is a makerspace?

Makerspaces are digitally-infused learning spaces that promote openness, creativity, collaboration, sharing and active learning. They come in many different varieties, sizes and flavours and combine influences from hackspaces, active and constructionist learning methodologies and open technologies.

Constructionism is a learning theory that promotes the benefits of learning by making things, meaningful construction that draws on the learner's own experiences and interests.

Makerspaces aren't defined by the technology and tools that they have, though the emergence of open, creative technologies have contributed to their development (and continue to be an important part of many makerspaces).

Alongside this, new collaborative and active learning approaches such as constructionism began to take a hold, promoting the creative potential of computers and technology and the importance of meaningful, active learning experiences.

In this spirit, many in the maker community document and share their own maker projects and contribute to an extensive online community of guides, tutorials, support and inspiration.

Makerspaces don't even need to be a permanent space,
you can also have mobile or popup makerspaces

Makerspaces are now entering an interesting junction, a next wave of creativity and innovation as they evolve from the initial model to form new approaches to collaborative learning and making in libraries and other open spaces.

When and why
to create a makerspace

Why makerspaces for libraries?

Makerspaces have found affinity with libraries because they provide creative and engaging ways to build on work already being done in libraries including:

- Digital literacy
- After school and lifelong learning
- Community spaces for creativity and arts
- Science, Technology, Engineering, Arts and Mathematics (STEAM) Education
- Entrepreneurship and local business support
- Social inclusion

Libraries play an important role in the community when it comes to both creativity and digital citizenship. Makerspaces provide a way to combine these forces to form innovative new services and spaces.

Launching a makerspace can help you reach new audiences as well as providing new ways to engage with existing users.

And in turn, library makerspaces have been influenced by the unique role of the library in the community and we're now seeing new kinds of makerspaces emerge in public, academic, medical and other kinds of library and information services.

From Zero to Fun –
How to launch a new space or service

The most important thing is to start. Your first version almost certainly won't be your last version. Rather than aiming for the perfect makerspace ready to launch, it's more important to start with *something* that will facilitate conversations with your community of users. These conversations are the most important outcome of your makerspace launch.

Getting started

What are your goals?
Part of a 'lean' approach is to avoid needlessly long planning documents that don't help to get a new service launched. This doesn't mean that planning isn't important but ideally, plans should be flexible enough to include our colleagues, our users and our ever-changing needs.

At Artefacto, our lean approach includes using an adapted version of the Business Model Canvas developed by Alex Osterwalder - an approach that is a bit more than back-of-the-napkin planning, but avoids overly-long, boring and inaccessible business plans.
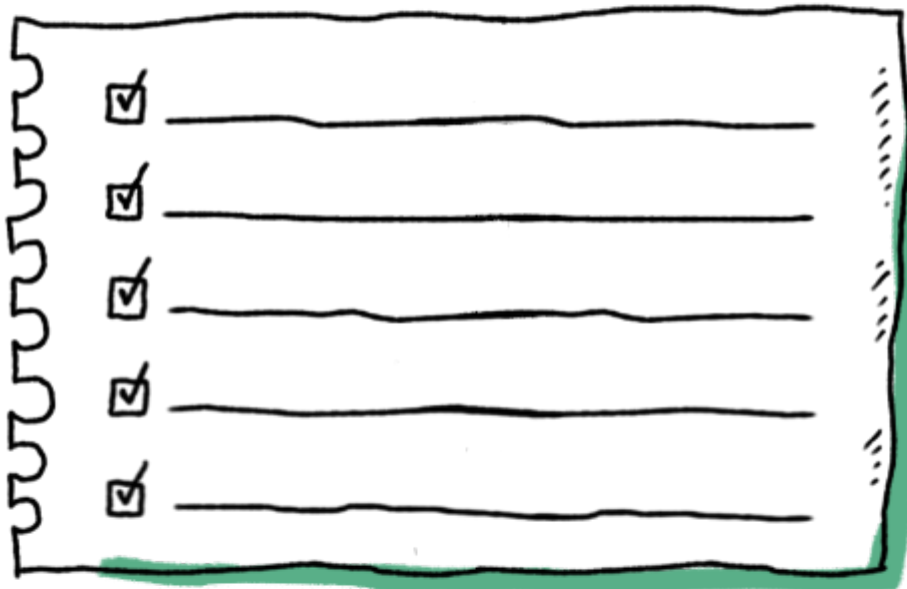

Pic. Library Makerspace Model Canvas

From Zero to Fun –
How to launch a new space or service

It is important to have a clear picture of what you want to achieve by providing a makerspace or digital making programming in your library. What will success look like?

Write down 5 goals for your makerspace programme that are meaningful, measurable and actionable.

These goals are likely to change over time but it gives you something tangible to measure and to base your decisions on.

Once you've brainstormed the aims for your makerspace, identify up to three to focus on for the prototype. These are your success metrics. This doesn't mean the rest should be discarded, but they should be kept to consider for future iterations.

Start now. Invite your colleagues and community members to share their ideas. The more diverse group you have, the more inspiring ideas you gather.
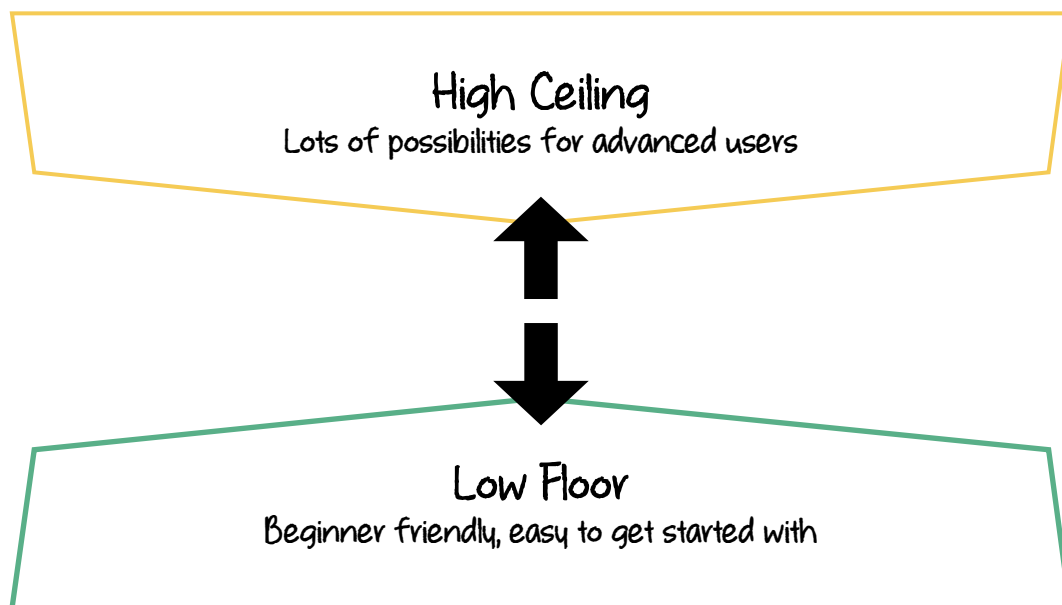
Making decisions
about tools and equipment

Choosing your tools

Take a gradual approach. Don't spend all your budget on new technology. You can do a lot with a little. And once you've started (and involved users), you'll be better equipped to make decisions about the resources your makerspace needs.

When making decisions about digital tools & technologies for users, we apply the low floor, high ceiling and wide walls approach conceived by Seymour Papert and Mitchel Resnick at the MIT Media Lab.

We choose technologies that are easy for new users to get started with ('low floor'), but also flexible enough to be used with more complex projects as users gain more skills and experience ('high ceiling').

High Ceiling
Lots of possibilities for advanced users

Low Floor
Beginner friendly, easy to get started with

Making decisions
about tools and equipment

There is also <u>another important dimension to consider: wide walls</u> - technologies that support and suggest a wide range of different types of projects.

We have found this approach useful for designing maker events too. It is important that tools and devices support the widest possible range of activities and projects and appeal to different types of users.

Other factors to consider:

- Support options (e.g. Who do you go to when something breaks?)
- Is there an active community sharing learning materials and experiences
- Repairability and longevity
- Responsible data management
- Storage
- Safety

Involving staff and supporting your makerspace

## Team building - getting colleagues involved

New services can be intimidating for some staff, particularly when it comes to working with new technologies. But relying on staff to nominate themselves risks only involving those with the most confidence (and leaving the rest behind). Removing barriers to getting involved is important for both staff and the broader community.

Ideas for onboarding staff

Onboarding staff can also be a good way to workshop your orientation workflows for users too.

- **Lunchroom test kitchen - give staff access to makerspace resources to help remove barriers and engage more staff in a non-intimidating environment**
- **Provide support and training for staff who are interested in getting involved**
- **Encourage staff to contribute ideas based on their own areas of interest**

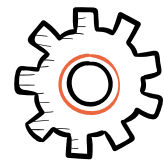## A Maker Mindset
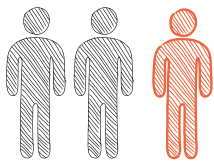
Everybody welcome!
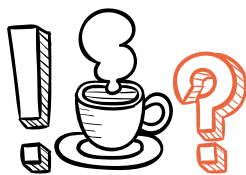Collaborate with
all kinds of makers.

Creativity matters!
Play, experiment
and innovate.

Be open to new ideas.
Engage, problem-solve
and iterate.

Embrace failure.
Reflect and learn
from mistakes.

Don't be afraid
to ask questions.

Listen and be
inspired by the work
of others.

Document your learning
process. Share and participate
within your community.

Delivering a lean, user-driven
makerspace programme

Your makerspace as a prototype

Your first makerspace is a prototype. A way to meet interested people, try new ideas and enable people to get involved to help shape the space.

Don't aim for perfect (you'll never launch). Don't feel pressured to stick to every first decision you made. Your ideas will evolve as you gain more experience and get a chance to gather input from more people.

Working together
Partner with individuals and organisations in your community.

We're big fans of standing on the shoulders of giants. You can find inspiration from other creative learning spaces both within and outside of the library sector.

Invite a guest speaker, talk to colleagues from other libraries, share the knowledge and resources you discover or create.

You can also start by *hosting* maker events - you can, for example, register as a host venue for Raspberry Jams (community-run events for Raspberry Pi enthusiasts), CoderDojos or Repair Cafes.

Don't get hung up on the technological tools and resources. Since the increased attention on STEM learning, there's been a whole new world of educational toys, software and technologies launched. It can be a bit overwhelming. It's best to try a few things and get feedback before making a big investment in equipment.

Design *with* users, not *for* users
If your makerspace is a prototype, you need to be testing hypotheses. This is an important way to keep your own assumptions in check and ensure you're building services that put users first. Ask your community what they want to create and learn and what skills they want to share.

Delivering a lean, user-driven
makerspace programme

Putting the space in makerspace

We know that not everyone is able to host a permanent makerspace in a dedicated area in the library. But regardless of whether your space is permanent, shared, mobile or popup, access and design are two key areas that will contribute to the success of your makerspace.

Some of the questions you need to answer about your space are:

- Who can access your space and when?
- Do members need to attend an induction or specialist training before accessing the space?
- Can room and equipment be booked or borrowed?
- How are people notified about changes, new events and other programming of the space?

Building collaboration into your space

Make collaboration and creativity an intrinsic part of the space - built into the fabric of your space. This can be via design elements (whiteboards, moveable tables, feedback walls).

This can also be reiterated via the way you run the space. For example, provide frictionless ways for users to have input into rules, procedures and decisions about the space.

Encourage peer learning in the space rather than adopting an instructor-led approach. This also helps involve people who aren't as confident in their technical skills, including staff.

And showcase the work of your maker community in regular exhibitions and through your social media (with permission, of course).

Remote but still connected

What about when the library space isn't available? Many libraries have utilised social media and other online platforms to support and develop their makerspace programmes remotely. This keeps people engaged and connected even when they can't be at the library.

This includes forming online maker community spaces using social media or live chat and video streaming platforms. You can also lend equipment and makerkits to your library members, both individually and to organisations.

The goal is to deliver the same kinds of connections and opportunities no matter where your users are.

And
Iterate

Once you've established a prototype makerspace or started running makerspace events, you can continue to iterate and evolve your service based on feedback and input from users.

Feedback won't only be in response to formal feedback requests and questionnaires. Much of your feedback will be from conversations with participants (and conversations with future members too!)

Keep note of every conversation and experience of the makerspace, including what works and what doesn't. Building things collaboratively and openly with your users will help create a better makerspace in your library. Have fun.

hello@artefacto.org.uk
artefacto.org.uk