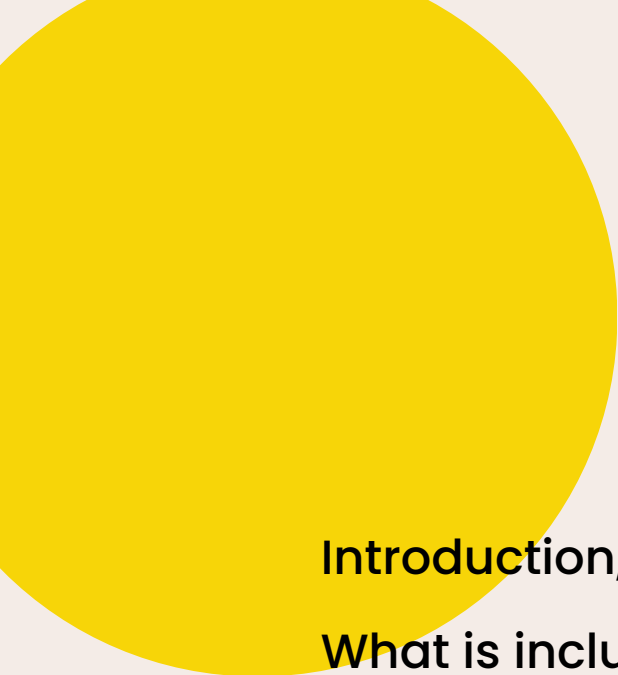# Creating an inclusive and welcoming makerspace

This manual was created with the purpose of offering resources and tips on how a makerspace and its community can become more inclusive, diverse and welcoming to those who might feel under-represented and less visible in the Maker Movement and its community.

Critical Making
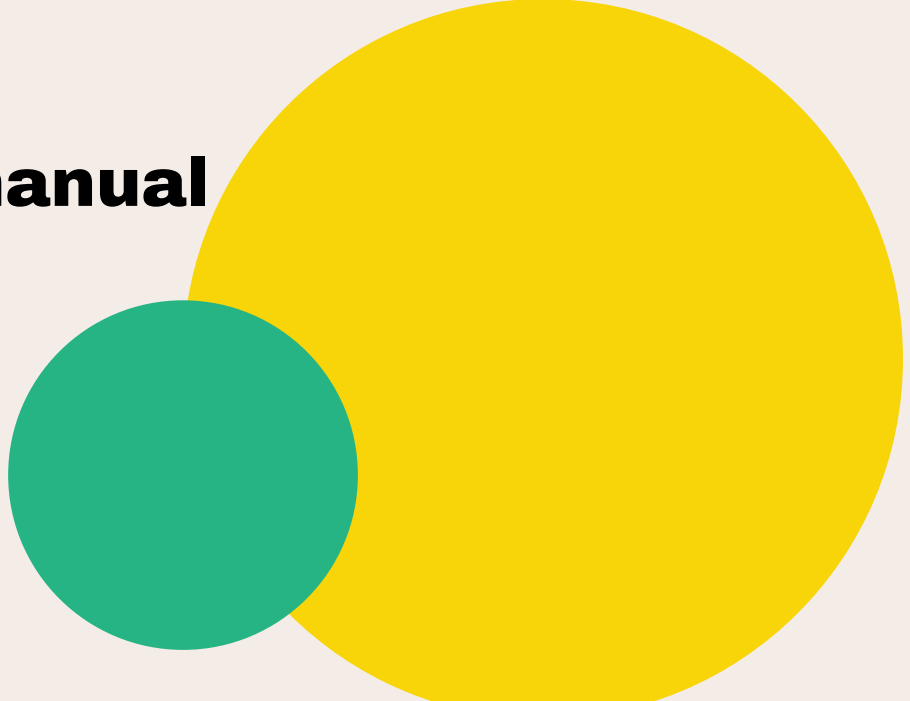
Introduction, purpose of this manual

The first version of the manual was drafted by Cin Pietschmann and the Critical Making project team. This version has then been discussed with makers and makerspaces around the globe: Saad Chinoy with Salvage Garden Assistive Makerspace (Singapore), Mathew Lubari with Community Creativity for Development (CC4D), Raveen Rizgar with Suli Innovation House (Sulaymaniyah, Iraq), BiTmakerspace (Bahir Dar, Ethiopia) and Fablab Winam (Kiumu, Kenya). Additionally, feedback from the Happylab Vienna (Austria) as well as the German Verbund offener Werkstätten has been considered. On the basis of received feedback and insightful comments, the guidelines have been extended to this current version.

We are aware that the manual is not exhaustive - what is and can be changed is highly context dependent. This is why the guideline focuses on possible dimensions, which might foster processes of exclusion and inclusion to steer reflection processes, instead of listing ready-made solutions.

What is inclusion and what does it mean in a makerspace?

When we talk about **inclusion** it refers to the conscious act of including people or groups in day to day life, as well as providing access to resources and opportunities to those, who might not have access to these in their everyday-life. Why is this also important for making and why do we need to talk about inclusive making? On the one hand, people might be excluded from making or a makerspace because there are literal barriers hindering them from entering a space or taking part in the process of making. This might be due to people having physical disabilities and a makerspace might not be wheelchair-accessible or they cannot use certain tools. On the other hand, there are also barriers, which are not as physical: someone might not have the financial resources to buy tools and materials they would need for a making project.

If we want to make a makerspace more inclusive, we have to think about what currently makes the space less inclusive and welcoming. Creating a welcoming atmosphere is just as important as breaking down different kinds of barriers. If we want to invite new groups of people into a space and community, we must also consider what makes people stay and want to become part of the community. To achieve this, the very first step is to be welcoming, to help newcomers, and make people feel comfortable within a new space and community.

Find out more here: https://criticalmaking.eu/ introduction-inclusive-making/

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Basic rules on how to create an inclusive makerspace

There are in general some ground rules to start with, which should always apply:

Be outspoken against any form of discrimination
If you want to welcome newcomers - especially those from marginalised populations - it is your responsibility to create a safe environment for them and make them feel safe. Be loud and clear about both your own stance and the makerspace's stance against discrimination and be ready to take action if they are challenged.

Publish a code of conduct (CoC) in your makerspace
A CoC consists of rules which outline norms, responsibilities and appropriate behaviour alongside what to avoid in a specific group or space. Such a CoC can also be understood as a social agreement. A CoC should take a stance against all forms of discrimination and outline the consequences if rules are broken. A proper CoC should not only address inappropriate behaviour, but also actively name and promote appropriate behaviour and line out how the space and community strive to be like. For example, inclusiveness can be explicitly named as core value of the space.

Co-create and co-evaluate your CoC time and again
Invite a diverse group of people to collectively work on or give feedback on your code of conduct. Expect to change some things in the future as we are all growing and evolving, not only as people, but as a community that never stops learning.

Reflect what, how and why you do it
Discuss the practices of your makerspace in your community - what are you doing, how are you doing it and why? By practising mindfulness, we can become better allies for marginalised groups and might be better able to articulate our own experiences.

Establish an awareness team
Have an awareness team (or person) that functions not only as reinforcement of the CoC, but also as a first contact point for feedback or for someone who needs help.

In-Depth Tips

In the following part, we want to offer more in-depth tips on inclusivity in a makerspace. Feel free to choose what is most important to your space right now or what might need improvements.

Team and Responsibilities

As mentioned earlier, an inclusive makerspace has different facettes to it. The community of a makerspace and the core team of a space are an important aspect. Who is in charge in your makerspace? In case there are any paid positions, who is holding them? Who are the trainers in your space? Taking inclusivity as a core value also implies to reflect your spaces' underlying processes of selection. Representation matters, and having persons of different genders, ethnicities, abilities, age-groups or religious affiliations visibly in charge, might not only ensure that different needs and interests are considered in the makerspace's activities. The team might also attract new members of underrepresented groups.

Space and barriers

Making a space accessible is an important part of inclusion. Many people in society have mobility issues, which might, for example, imply they use a wheelchair or they generally have great difficulty climbing stairs. If you want to make your space more inclusive take a look around and imagine how people with mobility issues could access and move around in your space. Can everybody enter the space? Is there enough space for a wheelchair user to move freely? Does your space have comfortable places to rest? Can everybody access all tools available? Are toilets wheel-chair accessible in the makerspace? Are your toilets binary-gendered only or do you also offer options for non-binary individuals and other genders?

Realistically, a makerspace that is not completely accessible cannot just move to another, more accessible space – but you can always check how you can make the space you are using right now more accessible. Making your space more accessible is also a great project for makers! We also recommend adding any information on accessibility to your website, e.g. list which tools and places can be used by wheelchair users.

If you find yourself in a rather inaccessible space and there is little you can change, but you really would like to do something about it: think about pieces of the makerspace that could go on tour to a more accessible space or partner with others. Might there be a kind of event or initiative you could support?

Barriers might also arise from mobility issues outside of the makerspace: if the space is not located in a city and or a location that is easily accessible by public transport, it might be hard for some people to visit the space at all, as the effort and/or costs arising from visiting the space – especially for a first time! – might just be too much. In this case you can again think about teaming up with other spaces/initiatives to offer events in a more accessible space outside of the makerspace. If it is possible you can also investigate if other makers and members own a car or other means of transportation, which could help bring people to the makerspace.

Events & scheduling

With every event you organise, carefully consider how you select your facilitators, trainers or moderators. Representation matters and a specific person having this role might also encourage others, who can relate to this person on the basis of their gender, their ethnicity, disability or age, to join the event.

Invitations to events can also be important stepping stones to reach different groups. The visual and written language used can attract interest or even discourage participation. Also, the information shared in the invitation can enable engagement. For example, including that an event is wheelchair accessible and also assisting persons are welcome can encourage wheelchair users to visit the event.

You might observe that only a very specific group of people takes part in your makerspace events. This does not mean that the event is only interesting to them. The scheduling might not work out for lots of other people interested in joining.

This might be due to people having to take care of children and other family members or observe religious rituals on specific weeknights or holidays, so they might not be able to join events later in the evening. If it is possible, change dates around and see how different days and times might work out for different people!

If you want to reach a specific group of people, consider throwing an event just for them – but always take into account their needs and expectations! For example, several makerspaces organise women-only workshops and events. You can also think of organising events in a caretaker inclusive way. One possibility entails having caretakers and children working side by side on individual projects in the space. Also organising child care in a separate room is a possibility that enables caretakers to take part with their child(ren).

Reaching out to under-represented groups

If you come to the conclusion that your makerspace attracts mostly the same group of people and misses under-represented groups, you have already done a first step towards changing this! Coming from realisation to actual change is another big step that should not be underestimated. We have already discussed reasons why people might not be able to be part of a makerspace and how to change these. Besides arranging the physical space and adjusting what the makerspace may offer, carefully selecting your facilitators at events and varying event scheduling, you can also actively approach different groups of people and encourage them to join!

You can reach out to under-represented groups by partnering up with local associations, schools and initiatives addressing certain groups, open up a conversation about what the makerspace can offer and plan a joint event together!

When reaching out to an under-represented group of people, you are not yourself a part of, you also need to be sensible and aware of your own intentions: Do not invite members of a marginalised community, because it will look good on pictures or because you "have" to do it. Do it, because it is just and the right thing to do. Do it, as a more inclusive makerspace will enrich the community and the maker movement overall.

Creating a community & making people feel welcome

By opening up the space and inviting underrepresented groups to the maker community you are already dealing with the next step: You do not want to just invite people, you want them to feel welcome and let them be a part of your community. As such, you should be open to feedback and changing things. If you invite new people into the maker community, do not make them feel like "add-ons", but valuable members of the community.

Languages

Not all people interested in joining your community/space may speak the country's/local language. They might have difficulties communicating or getting hold of information about your community/space. It already changes a lot if you offer basic information in more than one language.
You can also ask members of your community which languages they speak and if they are willing to translate some information or offer translation at events.
Also, offering events with sign language might open the space to completely new user groups.

Offering mentoring

Being new in an unfamiliar place or community can be intimidating. If you offer mentoring to newcomers they may feel more welcomed and also may find it easier to join a new community.
It is recommended to establish long term members as mentors as they can show newcomers around and explain how the community operates. It is also recommended to advertise mentoring openly, so people can find the information about your mentoring offers at your website.
Mentoring can be offered at regular events, but you can also offer newcomer events with 1 to 1 mentoring in case you have this many mentors available. People might find it easier to attend a newcomer event prior to attending other events or join the community.

📌 Offering financial aid and resources

People may not have had the chance to become part of the making community because they cannot afford tools and materials to start out – or it might simply be expensive to invest money into a new hobby right from the start or jump right into a monthly membership fee. If your space asks for a membership fee, consider a free trial period for newcomers and a sliding pay scale based on a trust system. This means you offer different fee tiers people can choose from and you trust in people choosing a tier that reflects their financial means. A trust system is recommended because having to prove one's own financial scarcity can be both difficult and shameful and might hold people back from taking up the offer. Other practical ideas include having different price-schemes for using the space at different times during the week, with e.g. offering a cheaper card for using the space three times a week vs. flexible full-time use.

As materials and tools can be expensive, a makerspace should offer a range of tools to use for everyone or encourage members to share some tools if possible.

A collection of simple materials like plywood, soldering tin, filament for 3D printing and more for newcomers to use for free or for just a small price can be a great encouragement to get started with those first few projects! Installing a donation box for left-over materials to be shared can also be an idea to make materials more affordable and accessible.

📌 Offering easy first-time projects into making for newcomers

Specific newcomer events are helpful for people who are new to making, and can provide further guidance on what the first (or second, or third) making project can be. Experienced makers might have already found their favourite theme, tools or working materials, but they also know that there are infinite possibilities in making! Newcomers might have a specific project in mind or a specific idea of what they want to learn – but many of them do not. This might be even more true for newcomers, who have not grown up with the encouragement to tinker or repair something or to try out playing with hardware.

To help people start out with making, a makerspace should offer a handful of project ideas for beginners with a tutorial that is easy to follow. In case you can also offer the tools and materials needed for the project, even better!! These entry-projects might relate to assembling, getting to know specific machinery and should also be fun. Use the wisdom and experiences of your makerspace community to come up with ideas for first projects - what would have helped them to get started? Also the format of open repair workshops can help interested people to make their first steps in making. Small projects to begin with can also be offered at newcomer events (please refer to the previous section).

Importantly, a thorough documentation of maker projects can help both newcomers and more experienced makers to learn from and with each other.

📌 Making things that make sense

When thinking of new projects, think about your own needs, but also the needs of your community and your broader environment. Who might find this tool or design useful? Different users might have different requirements. The involvement of a diverse maker community with different needs and visions supports robust and inclusive designs for all.

Checklist

We have created a summarising checklist with all our tips and examples to make a makerspace more inclusive and welcoming. This also serves as a quick overview when you want to make changes in your makerspace. You can also use it as a conversation starter in your maker community. A makerspace might not be able to implement everything on this checklist due to limits of resources and this is okay. Have a look and select points that can be easily implemented and choose long term goals you would like to achieve.

Reaching out to newcomers

- Consider consciously which groups are present in the makerspace & which are not – what factors might contribute to that?
- Reach out to newcomers through target group initiatives/organisations
- Offer guidance to easy first time projects for newcomers
- Organise newcomer workshops/events
- Offer mentoring to newcomers

Make people feel welcome & create a community

- Have a code of conduct for your makerspace
- Establish an awareness team, consisting of at least 2 persons, people can turn to for help
- Provide info in multiple languages and offer translations if needed
- Be open & appreciative to feedback of newcomers; be open to change things & try out new things

Checklist

Team and responsibilities

- Reconsider nomination or hiring practices in your space for a diverse representation of different members of the makerspace

Space, barriers & resources

- Try to make your makerspace as accessible as possible; consider how you can include people if there are physical barriers holding them back
- Include info on how accessible the makerspace is on your website
- Offer free or sliding scale memberships if your makerspace operates on membership fees
- Offer newcomers free or low cost materials and access to tools

Checklist

Organising events & scheduling

- Offer different kinds of events; make sure to have events that are catering towards newcomers
- Carefully select event facilitators in relation to your target audience
- Create inclusive invitations, which are explicitly stating who is welcomed to the event
- Take into account that different people have different schedules and responsibilities in life; try out and change scheduling here & there
- Offer translations at events if needed
- Offer childcare at events or create child-friendly events, which let a family participate as a whole

Making things that make sense

- Take into account that different people have different needs.
- Involve various perspectives in designing and planning your project for more inclusive and robust products.

Resources & good practices

Here you can find further materials and inspiring practices:

Introduction to inclusive making:
https://criticalmaking.eu/introduction-inclusive-making/

Codes of Conduct:
- The code of conduct of the Makers Academy community: https://makers.tech/code-of-conduct/
- The code of conduct of the Gathering for Open Science Hardware (GOSH): https://openhardware.science/gosh-2017/gosh-code-of-conduct/
- The code of conduct of the Global Innovation Gathering (GIG) DOTS conference in Nakuru, Kenya: https://globalinnovationgathering.org/activities/dots/dots-2019/
- The code of conduct "Know your rights!" by the German youth hacker organisation: https://jugendhackt.org/blog/unser-verhaltenskodex-code-of-conduct-und-unser-aushang-deine-rechte/

Formats
- Ideas for care-taker inclusive making: https://wikifactory.com/+criticalmaking/stories/caretaker-inclusive-making-for-more-inclusive-making
- Inspirational stories about inspiring makers from different backgrounds facing gendered barriers to making: https://criticalmaking.eu/inspirational-stories-about-gender-inclusive-making/
- The Digital Naturalism Conference (DINACON), in 2022, Batticaloa, Sri Lanka: https://www.2022.dinacon.org/
- The African Makerspace Gathering, in 2022, Cape Town, South Africa: https://fab.city/events/2022-africa-makerspace-gathering/

makerspaces

Procomum

The Procomum Institute (IP) (https://lab.procomum.org) is a non-profit organisation based in São Paulo Brazil, that began in 2015 with the Technologies and Alternatives project, whose focus was to rethink the role of free culture organisations in the face of the transformations caused by the internet. IP's mission consists of working towards recognizing, empowering and protecting common goods, as well as creating community networking and preventing enclosure acts… Continue reading online (https://criticalmaking.eu/case-studies/gender-inclusive-making-procomum/)

xHain

xHain (https://x-hain.de/en/) is a hacker and makerspace located in Friedrichshain/Berlin, Germany. The space was founded in 2016 in Friedrichshain, Berlin, in order to create a space and the opportunity to learn from others. The space is not only open to members, but to everyone interested. The space is organised as non-profit … Continue reading online (https://criticalmaking.eu/case-studies/cases-that-foster-gender-inclusive-making/)

GoGirls ICT

GoGirls ICT (https://gogirlsict.org) was founded in 2015 by a group of young women in Juba, South Sudan. The triggering moment for the initiative was the international "Girls in ICT day 2015". GoGirls ICT follows the philosophy of chain-based-trainings, which means that they train girls to become mentors who then reach out to primary and secondary schools and provide support and training there…Continue reading online (https://criticalmaking.eu/case-studies/gender-inclusive-making-gogirls-ict/)

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Center Rog

Center Rog (https://center-rog.si/en) is currently built by revitalising the building of the former Rog factory in Ljubljana, Slovenia and to be opened in 2023. Involving the different communities of the city, bottom up processes are implemented to ensure that Center Rog is usable and useful for direct users and the broader community, with a clear commitment to intersectoral and intergenerational cooperation, creativity and innovation, accessibility and sharing, gender equality/equity, social cohesion and inclusion... Continue reading online (https://center-rog.si/en/vision-and-development/development/)

XXLab @ HONF

XXLab of HONF (http://xxlab.honf.org/index.php/Main_Page) is an all-female collective from Yogyakarta, Indonesia with members from interdisciplinary backgrounds. They focus on the exploration of art, science, and free technology using open source software, hardware, and materials... Continue reading online (https://criticalmaking.eu/case-studies/gender-inclusive-making-xxlab-honf/)

Mz* Baltazar

In 2009, 3 of the 4 female members of the hackerspace MetaLab sought to create their very own intersectional feminist space for female, trans and nonbinary makers. Mz* Baltazar (http://www.mzbaltazarslaboratory.org/) was founded in Vienna, Austria, mostly by activists and political scientists, who – at that time – were part of... Continue reading online (https://criticalmaking.eu/case-studies/gender-inclusive-making-mz-baltazar/)

OpenHealth HACKademy

The OpenHealth HACKacademy is an amazing example of how to turn making more inclusive. Continue reading online: https://matchmymaker.de/open-health-hackademy/

Comments and ideas

Comments and ideas

Find many more Critical Making resources on:

https://criticalmaking.eu

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