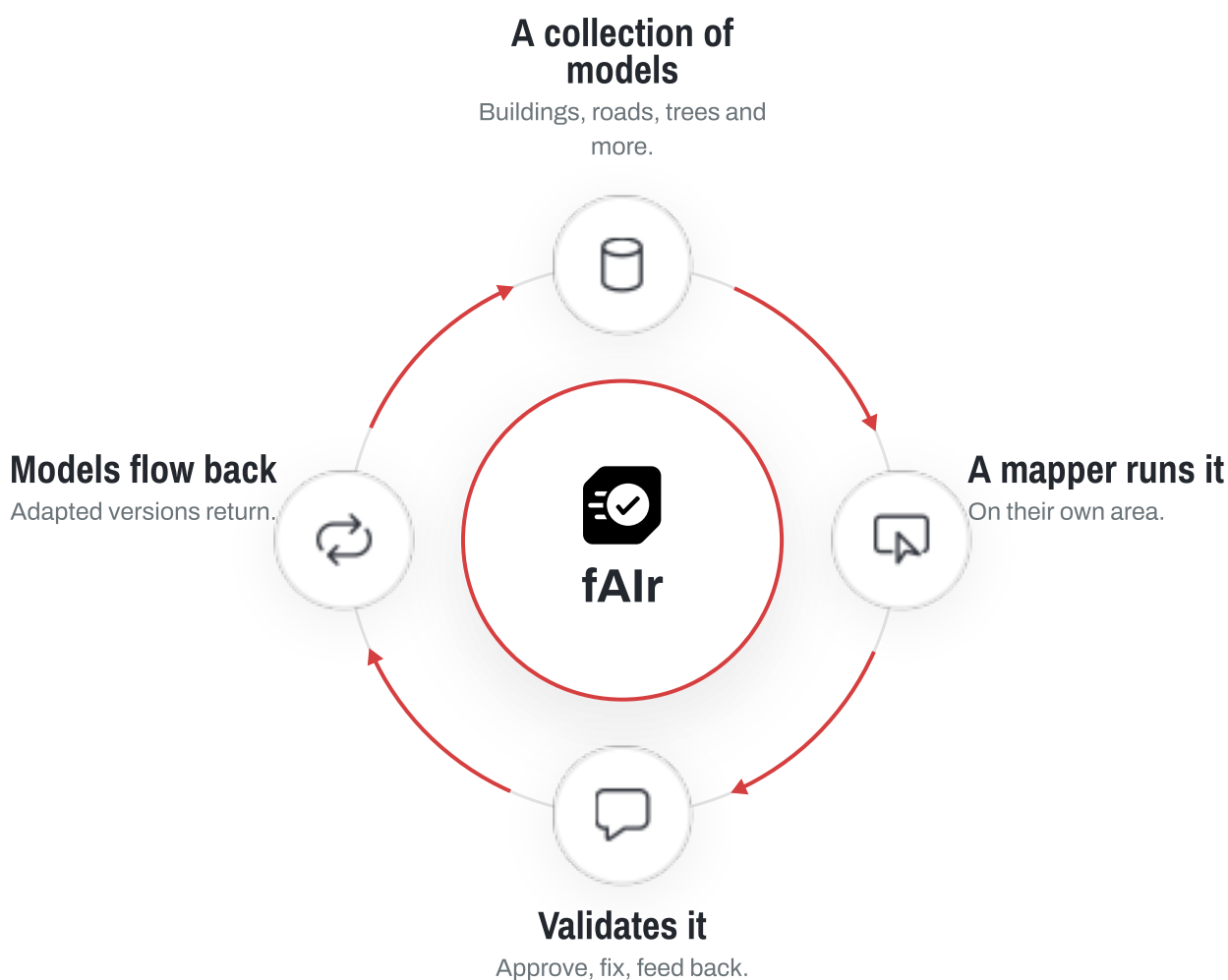


WHAT IT IS

YOUR AI MAPPING PARTNER

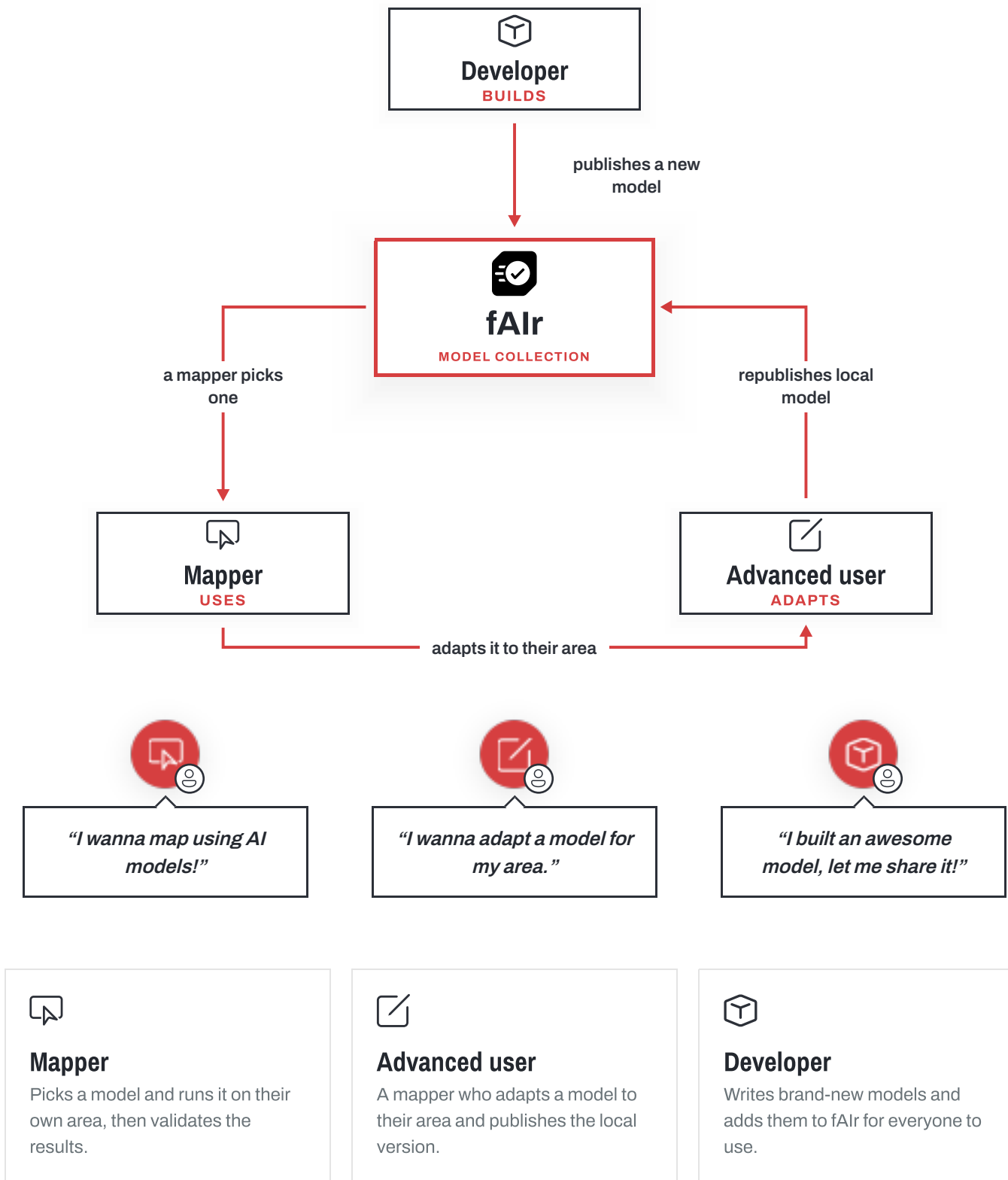
fAlr is HOT's open AI marketplace that connects mappers with Geo-AI models they can use and adapt in their own area for **humanitarian** mapping. You pick a model and run it. Adapt it to your locality & improve it.



HOW IT CONNECTS

USER BASES

People meet fAlr at different levels. Each one draws from the same collection of models and feeds something back, so the work keeps circling and improving.





01 USES MODELS

The mapper

"I want to map objects in my area faster. Can a model do the first pass?"

Choose a model

What do you want to map?

Samples

Choose your own

Choose your own **feature** and **location** to map

Nepal Flood Damage

Model: nepal-flood-damage

By: HOTOSM

Nepal

Solid Waste Detection

Model: yolo-swag-waste-grid-segmentation

By: HeiGIT

Solid Waste

YOLOv8 Building Footprint Segmentation

Model: yolo-v8-segmentation

By: HOTOSM

Building

Sanur Buildings

Model: sanur-buildings

By: Kshitij Raj Sharma

Building

Ready-made samples, or pick your own object and area.



Swimming Pool Detection, live prediction.



1 Finds a model

Browses the collection for one that fits: buildings, trees, swimming pools, parking.



2 Runs it

Points the model at their own area and lets it detect every object.



3 Gets results

Comes back as map objects, ready for the map.



4 Validates

Checks each result, and that feedback improves the model.

VALIDATE YOUR WAY



MapSwipe



Field mapping



Manual

Wants it adapted to their area?
Becomes the advanced user →



02 ADAPTS MODELS

The advanced user

the same mapper, leveled up

“This is good, but adapted to my area it would work better. I will make my own local version.”

A local model is a version trained on data from your own area, so it works better there. Each model carries its dataset, object type and training history.



1 Picks a model

Starts from one already in the collection.



2 Creates training area

A Tasking Manager project where they map.



3 Maps it & retrains

Feeds local examples back into the model.



4 Publishes

An adapted local version returns to the collection.

— GIVES BACK A local model the next mapper can pick up

← Another mapper discovers it



03 BUILDS MODELS

The developer

“I built a model that can map highway potholes. I want to share it.”



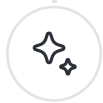
1. Writes the model

Builds and trains a new geo-AI model, like one that maps highway potholes.



2. Adds it to fAlr

Publishes the model to the collection with a clear name and the features it finds.



3. Available to everyone

From that moment, any mapper or advanced user can pick it up and run it.



Model code

written by a developer



fAlr

the shared collection



The mapper
uses it



The advanced user
adapts it

WHAT TO DO

Once PR is merged to GitHub, Model is available to STAC

In fAlr, the Model Contribution Journey

RAMP
Optimized for faster training w accuracy. Best suited for build tasks.

Accuracy:
80.98

Omran Najjar
Last Modified: 25/12/24

Step 1 Complete Prerequisites

Before opening a Pull Request, verify your model meets the technical and legal standards.

Step 2 Review Guidelines

To align with our community standards, you must read and acknowledge the contribution rules.

Step 3 Submit and Track PR

After reviewing the guidelines and finished the prerequisites, you can now open a PR.

Step 4 Approval & Deployment

Your contribution enters the final review stage by the fAlr maintainers.

Pending

Under review by maintainers or CI is running.

Needs Changes

Under review by maintainers or CI is running.

Step 2

ed model. Designed for s features across different d in collaboration with

/24

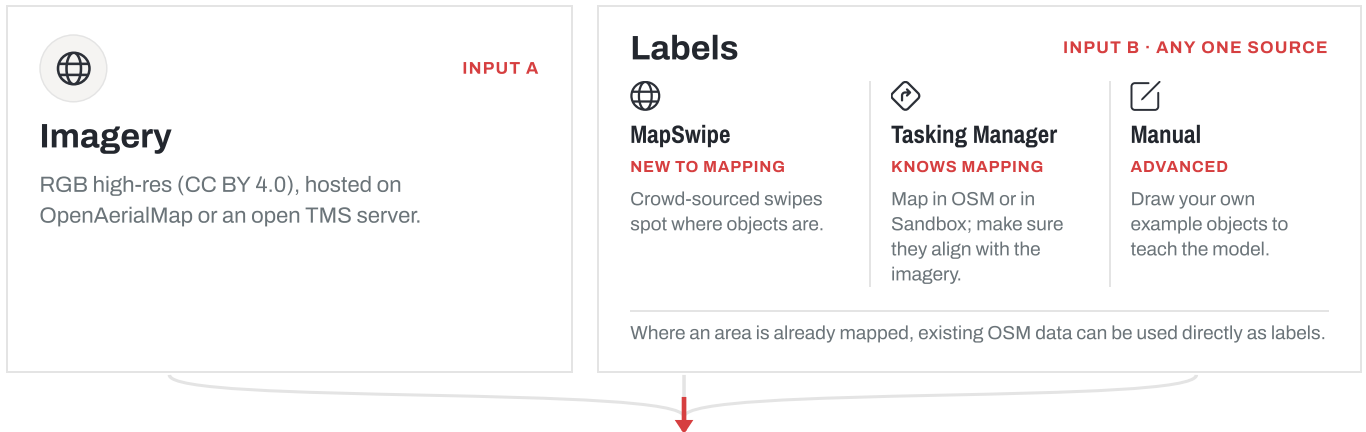
GIVES BACK New mapping abilities for the mapping community

THE DATA PIPELINE

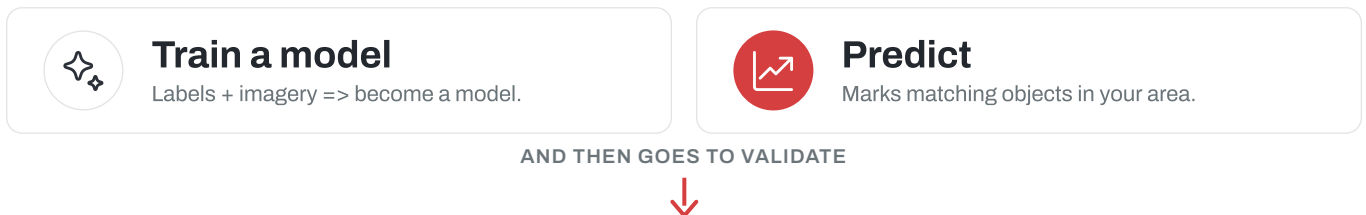
HOW DATA FLOWS ?

A model is only as good as the examples it learns from. fAIr takes labels from wherever you can get them, predicts, lets you validate, and hands the clean result back to you, then you decide where it lands.

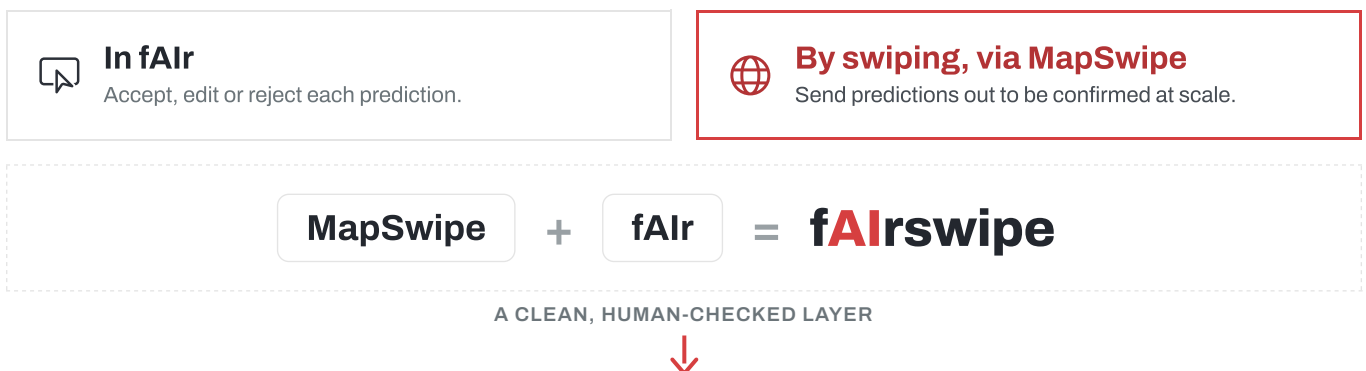
1 Gather inputs fAIr needs two things



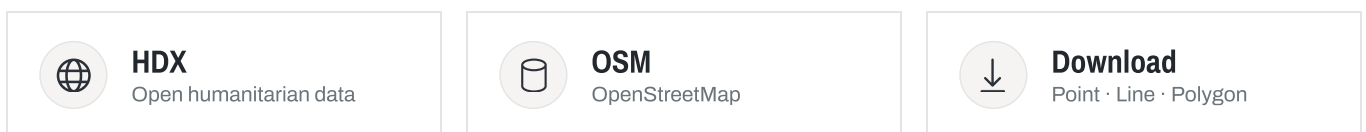
2 Inside fAIr



3 Validate



4 Use & share the data



■ **Merging with OSM data isn't automatic.** fAIr don't push data to OSM, A MapSwipe project to assist automation is in progress.

GET STARTED

USE fAIr

Six steps for your project.

1 Check the model exists

Verify a model for the objects you want to extract is already in fAIr. If it isn't, reach out to the tech team.

2 Get the imagery

Find existing imagery, or fly and capture your own, then upload it to OpenAerialMap.

3 Map training samples

Aim for 500 to 1,000+ samples per object type; the count depends on the object and how diverse the samples are. Try the existing base models first: if they already work well in your area you may need fewer. A brand-new object type can need 1k to 5k individual mapped objects.

4 Train the model

Train your model in fAIr, with support from the tech team if you need it.

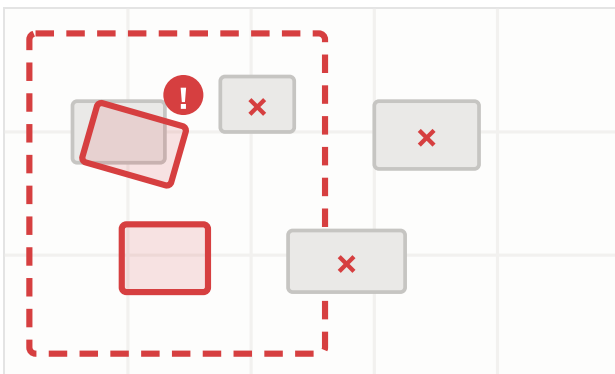
5 Predict across your area

Generate predictions across your wider area of interest.

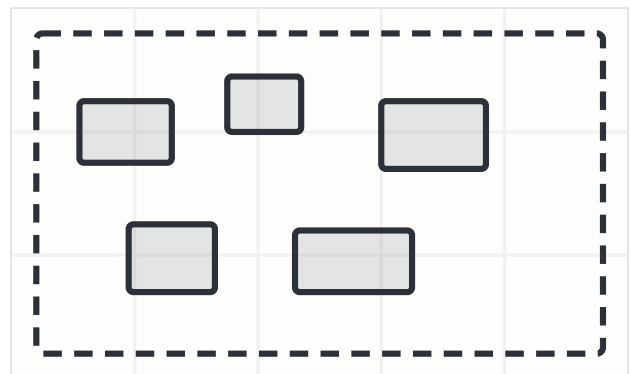
6 Validate, then share

Check the predictions in fAIr, MapSwipe or an editor, then publish them for other mappers to use.

TIPS & TRICKS

✗ DON'T **< 50 samples**

Three problems: too few samples, objects missed entirely (✗), and objects drawn wrongly (!). All of it gets learned wrong.

✓ DO **500–1,000+ samples**

Everything inside the box is mapped, aligned to each object, with enough to learn from.

- ✓ Labels must match the imagery exactly.
- ✓ Sample counts matter: 10 or 50 is nowhere near enough. Aim for 500 to 1,000+, more for varied or unusual objects, and keep them representative of your area.

QUESTIONS

FAQ

Q So what is fAIr, really?

A marketplace and connector. It lets mappers find geo-AI models and use or adapt them in their own area. It is not a single AI doing the mapping.

Q Do I need high-res imagery? Will Sentinel work?

fAIr only works with RGB high-res imagery (CC BY 4.0) ATM. Imagery is crucial and should ideally be hosted on OpenAerialMap or a public-domain TMS server. In future we might support Street Level Imagery.

Q Do I have to be advanced to start?

No. Begin as a mapper using a model someone already made. When you want it working better in your area, you grow into adapting and publishing your own.

Q Where does the finished data go?

Its your choice: You can bring into OpenStreetMap or other open platforms like HDX, or download outputs as points, lines or polygons.

Q Is merging with OSM data automatic?

No, not at the moment. fAIr doesn't push data to OSM; it's the user who decides what to do with it. We're working with MapSwipe on a project to assist with this.

Q Is it AI on its own?

No. fAIr brings existing state of the art Geo AI models for mappers, its not AI on its own. You pick the model, run it, adapt and validate.

Q How do I validate its output? I don't trust AI.

You will get the GeoJSON as output and you have flexibility on what to use for validation. You can: confirm features in MapSwipe, verify on the ground with field mapping, or trace and fix manually in the editor.

Q Can I add my own model?

Yes. Developers write model code and publish it to fAIr, where it becomes available to every kind of user.

Q How should I map training samples?

With Tasking Manager, MapSwipe or by hand. Need exact accuracy? Use Tasking Manager. Boxes acceptable? MapSwipe, it's more about finding.

AVAILABLE

Buildings

Trees

Swimming pools

Parking spaces

IN PIPELINE

Solar panels

Seagrass

Highway

FUTURE

Street-level imagery

START MAPPING

**Open. Free.
Built with you.**

• fair.hotosm.org

hotosm.org/en/tools-resources/tech-product-suite/fair

fair@hotosm.org

