



Urban Energy Transition - International Building & Construction



Survey Interactive Map for Energy Efficient Buildings

6th November 2024

Interactive Building Data Map for Kazakhstan

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Interactive map of energy efficiency in buildings in Kazakhstan

CONTENT:

- Building Information
- Energy Baseline
- Renovation Measures
- CO₂ Saving Potential
- Energy Saving Potential
- Economic Feasibility
- Capacity Building
- ...

The "Interactive map of energy efficiency in buildings in Kazakhstan" is an example of how data on energy consumption in buildings can be collected and spatially assigned to help demonstrate the potential for energy and CO₂ savings.

The current state of the map serves as inspiration and basis for discussion for possible further development. The input data is greatly simplified and uses various sources; the calculations themselves are already very complex.

Both the existing data and the calculation results showing possible energy efficiency improvements only demonstrate the principle for further development. All results may differ from reality in detail. Accuracy increases with use of and care for the instrument.

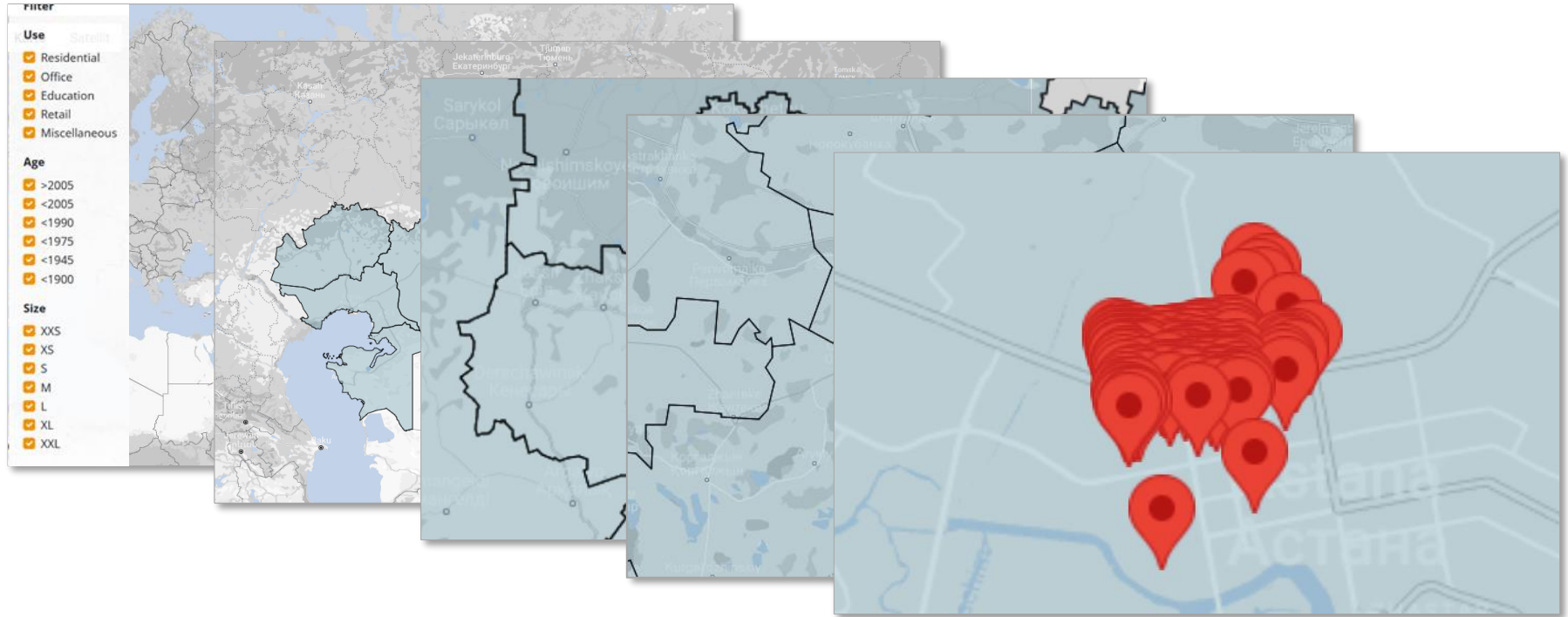
Kazakhstan

Energy Dialogue
Germany – Central Asia

dena
German Energy Agency

Federal Ministry
for Economic Affairs
and Climate Action

_Localisation



_Typologisation

xxs

xs

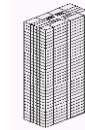
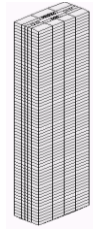
s

m

l

xl

xxl



residential
154 qm
1 level
...

residential
384 qm
2 levels
...

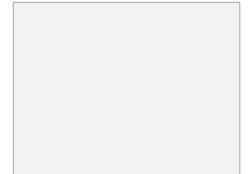
residential
960 qm
4 levels
...

residential
2.400 qm
8 levels
...

residential
6.000 qm
16 levels
...

residential
15.000 qm
32 levels
...

residential
37.500 qm
64 levels
...



_Information on Typologies

The image shows a map interface with a filter sidebar on the left and a detailed popup for 'Building KAZ 42' in the center. The popup includes a photo of the building, its name, and various energy performance metrics.

Filter

Use

- RES: Residential
- OFF: Office
- EDU: Education
- RET: Retail
- MIS: Miscellaneous

Age

- N: >2005
- A: <2005
- B: <1990
- C: <1975
- D: <1945
- E: <1900

Size

- XXS
- XS
- S
- M
- L

Building KAZ 42

Use: RES: Residential
Age: B: <1990
Size: S
EE standard: 0

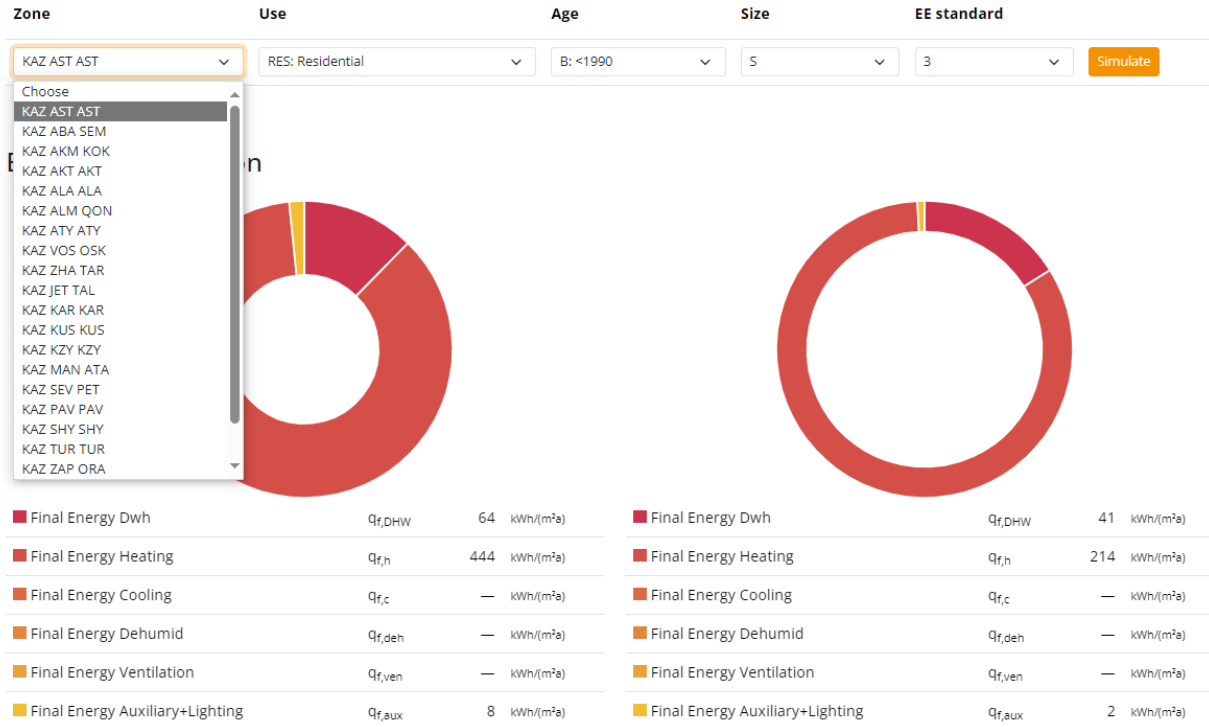
	Demand	Load
Heating	319.52 kWh/(m²a)	108.73 W/m²
Cooling	11.00 kWh/(m²a)	19.18 W/m²

	per m²	Total
CO ₂	428,880.97 kg CO ₂ e/(m²a)	1,132,245.75 t CO ₂ e/a

[Details →](#)

Simulation of Typologies

Compare building



Real Project Data

Building

- 5 levels, 6 entrances, 80 dwellings
- $\approx 4.300 \text{ m}^2$ treated floor area
- Mostly residential, some commercial
- Dwellings inhabited

Construction

- Prefabricated concrete panel building
- Flat roof (blind level), cellar
- Closed loggias / balconies

Energy

- $\approx 225 \text{ kWh/m}^2$ heat (district heating)
- $\approx 55 \text{ kWh/m}^2$ electricity (hot water, extra heating, household)



Who took part?

5 survey participants

Name

5 Antworten

Ayman

Nurpeisov Ukibay

Saken Makhambetov

Bauyrzhan Dzhaksybayev

Alexander

Organisation

5 Antworten

KazGBC

KazCenterWohnungsbau und Stadtwerke AG

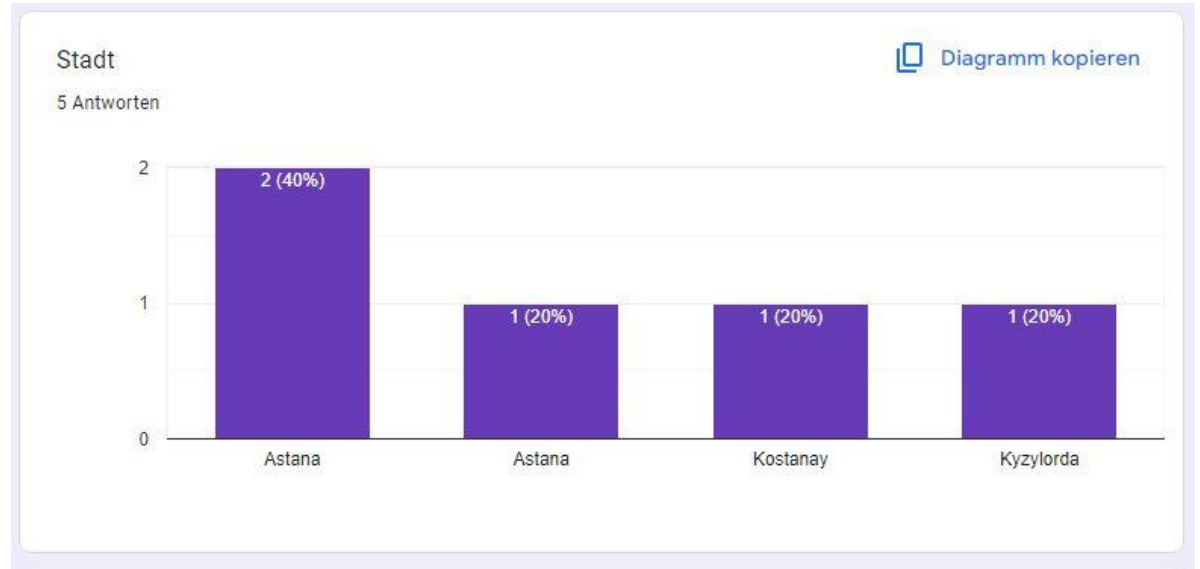
Shanyraq-Verein

Kumkol-eco LLP

Achsen

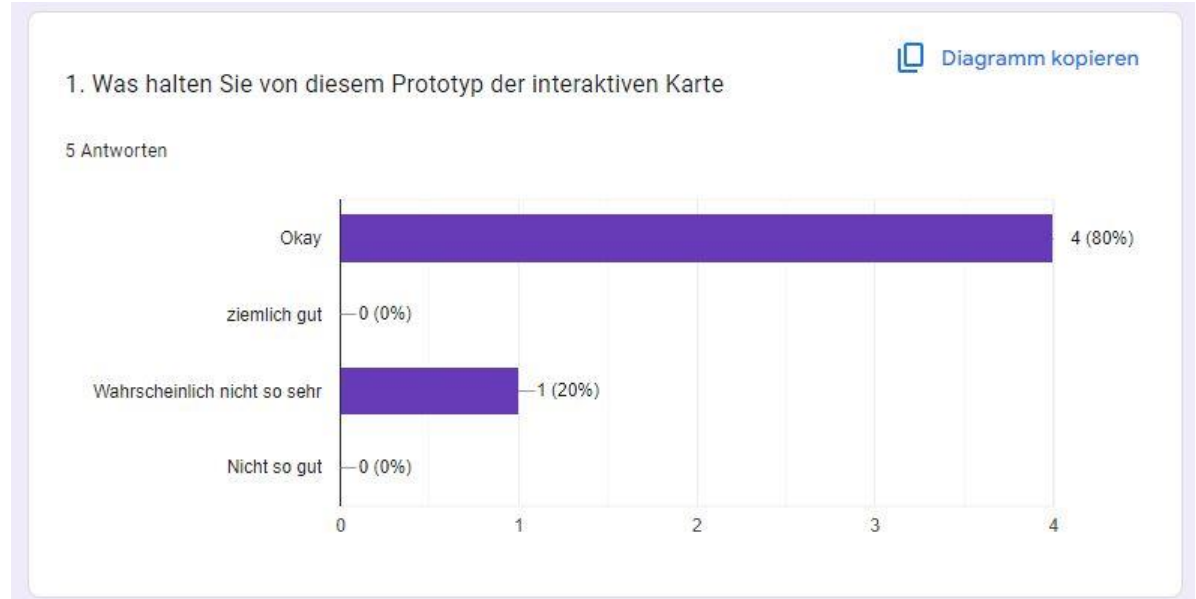
Where do they come from?

60% of participants from Astana



How do you like the interactive map?

80% like the draft map, 20 % not really

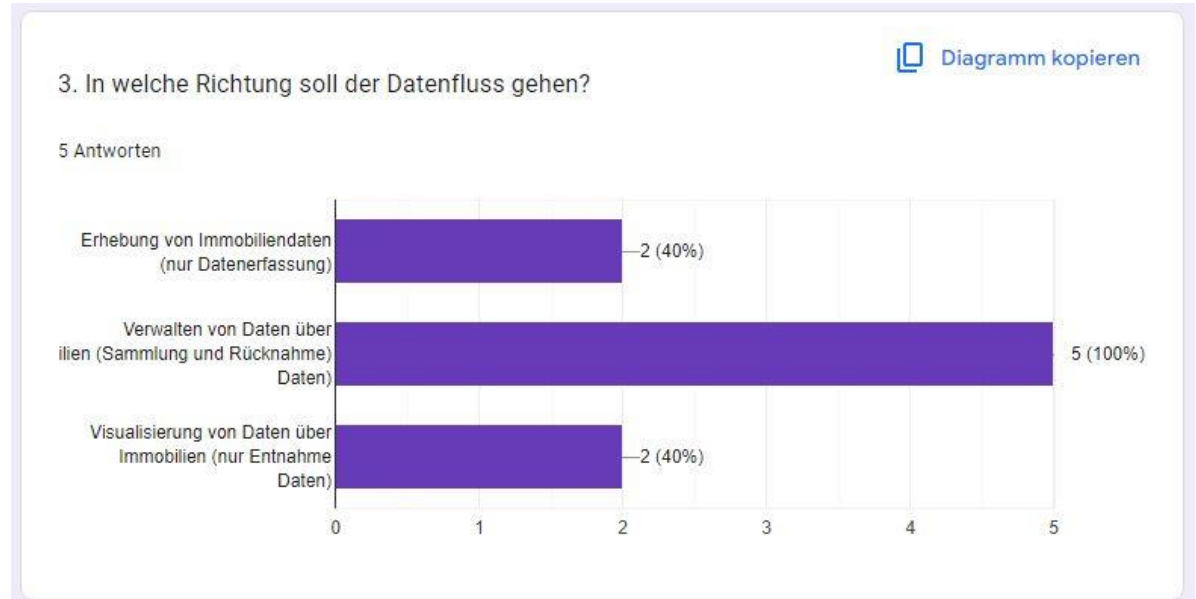


60% need to benchmark, manage, invoice



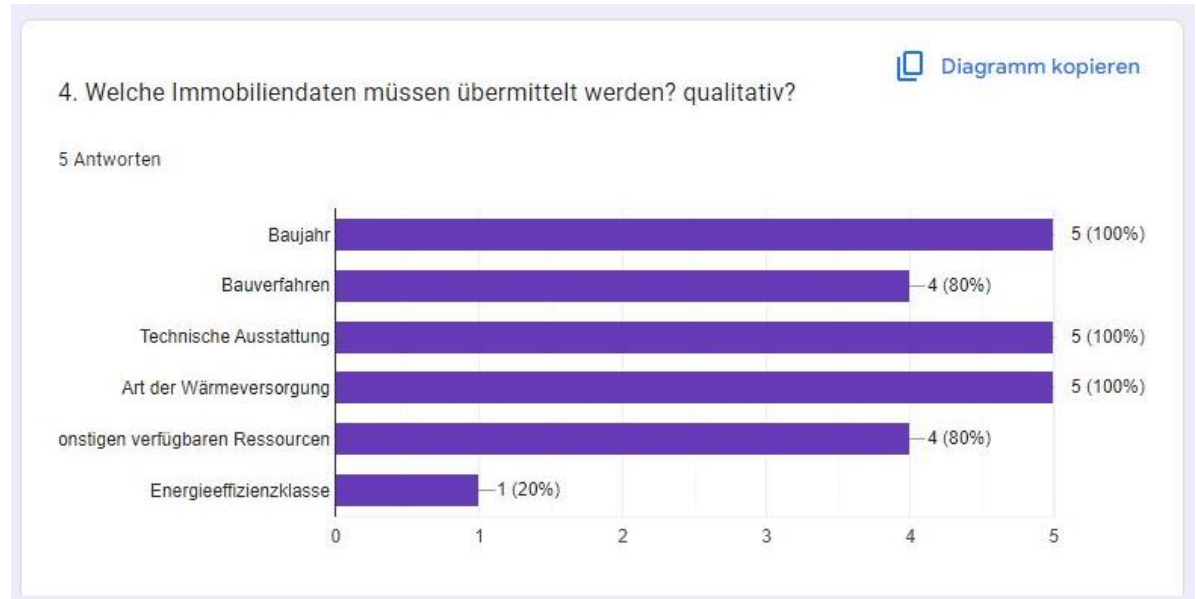
Which direction of data flow?

100% data flow in both directions



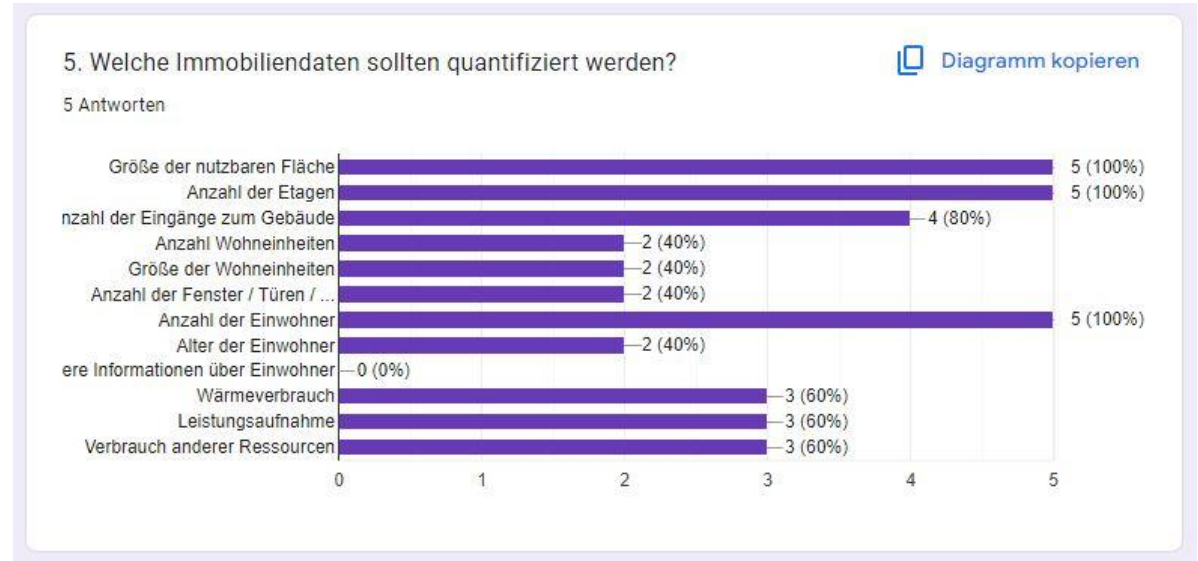
What kind of qualitative building data are requested?

100% technical data , 0% energy efficiency!



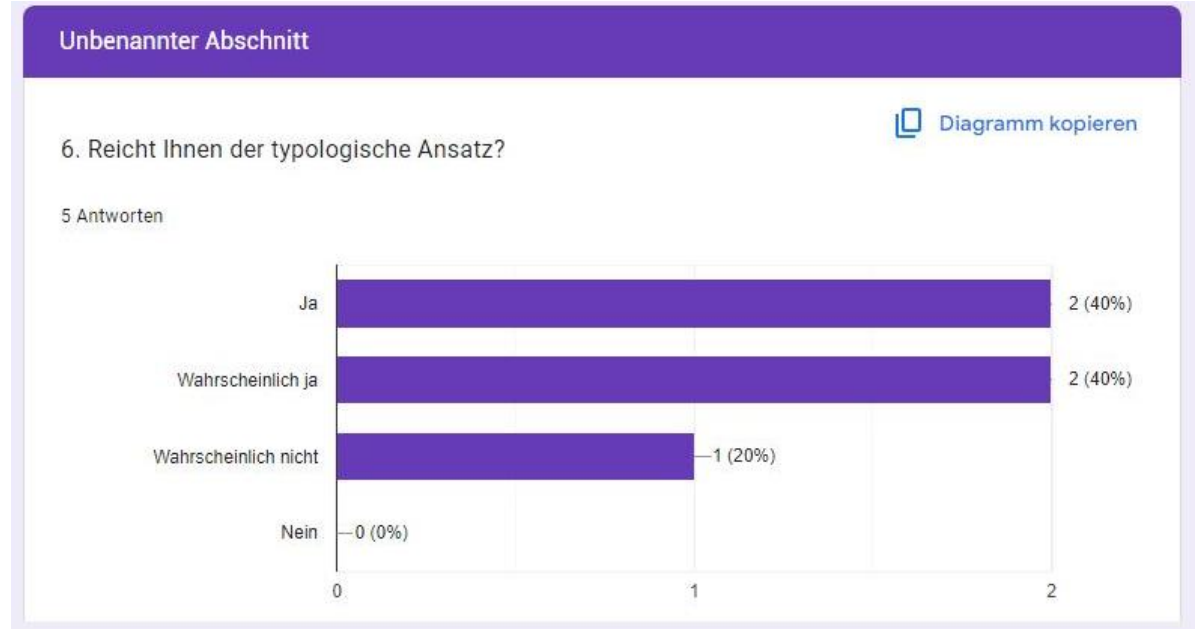
What kind of quantitative building data are requested?

100% building, 40% dwelling, 0% residents



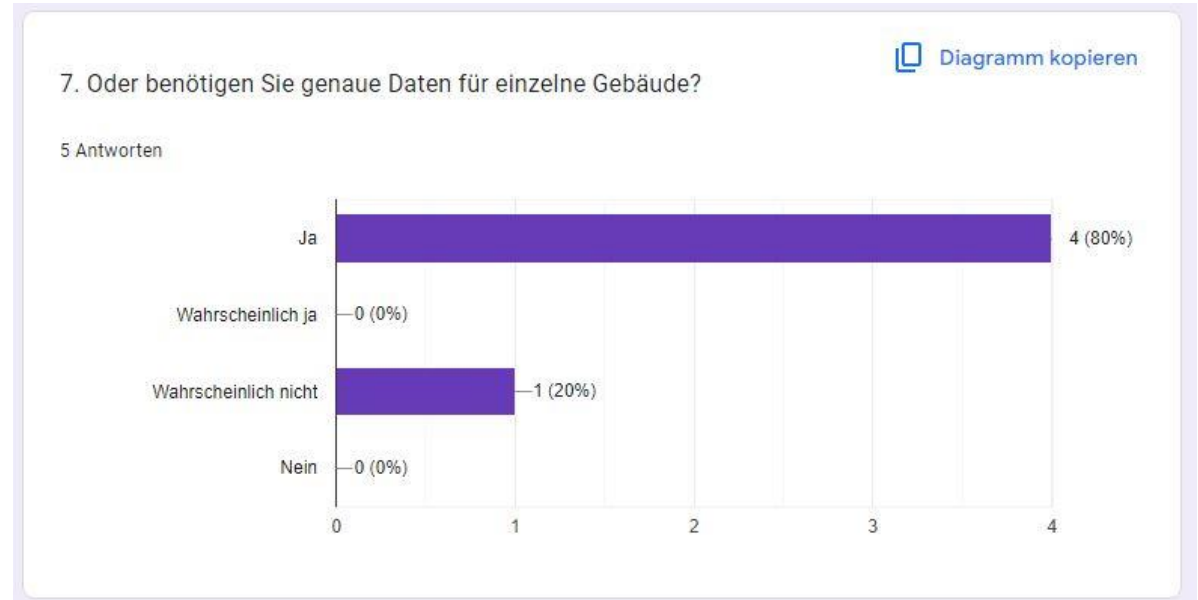
Do you agree with the typological approach?

80% typological approach rather ok



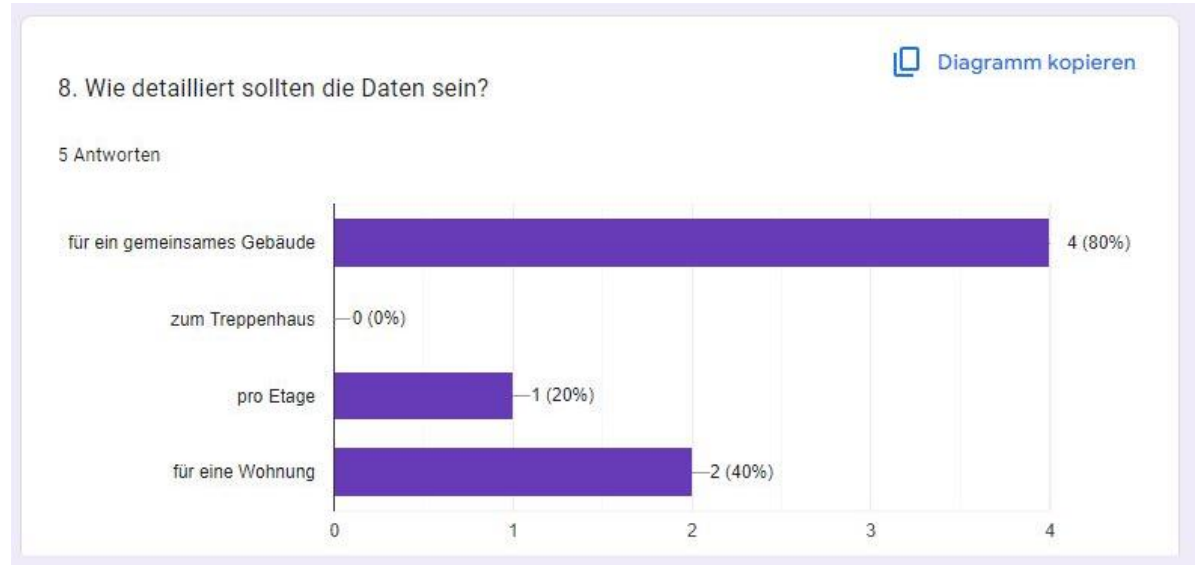
Do you need specific building data?

80% specific building data required



How detailed should the data be documented?

80% data on building level, 40% on dwelling



What is your possible input?

Input 75% content, 50% develop, 25% finance

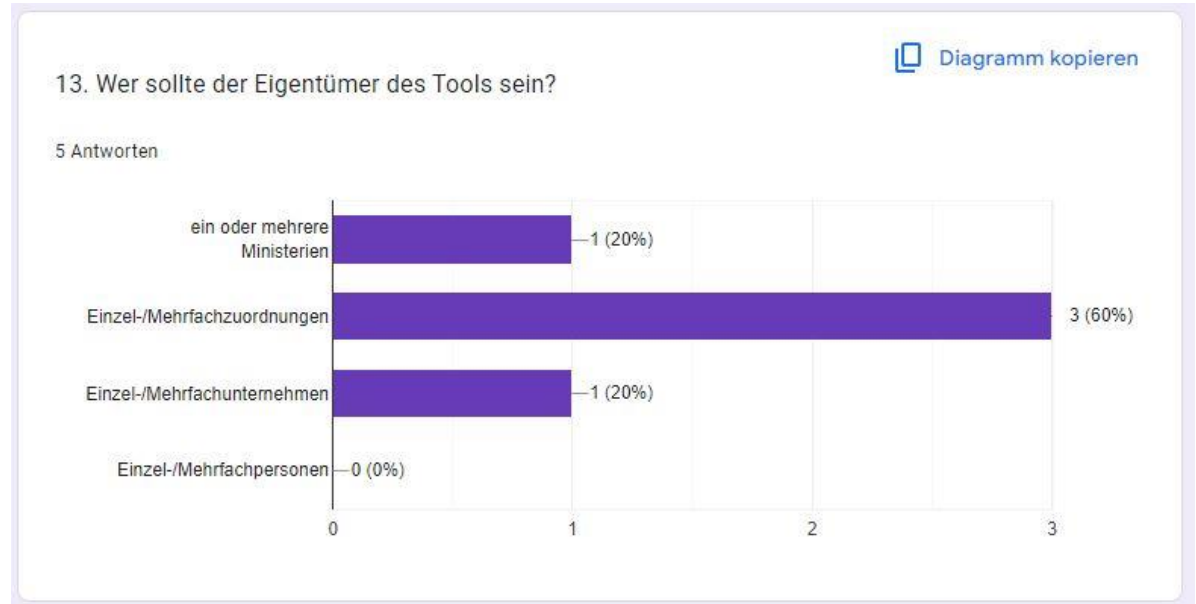


When should the first version be available?

100% availability in 2025

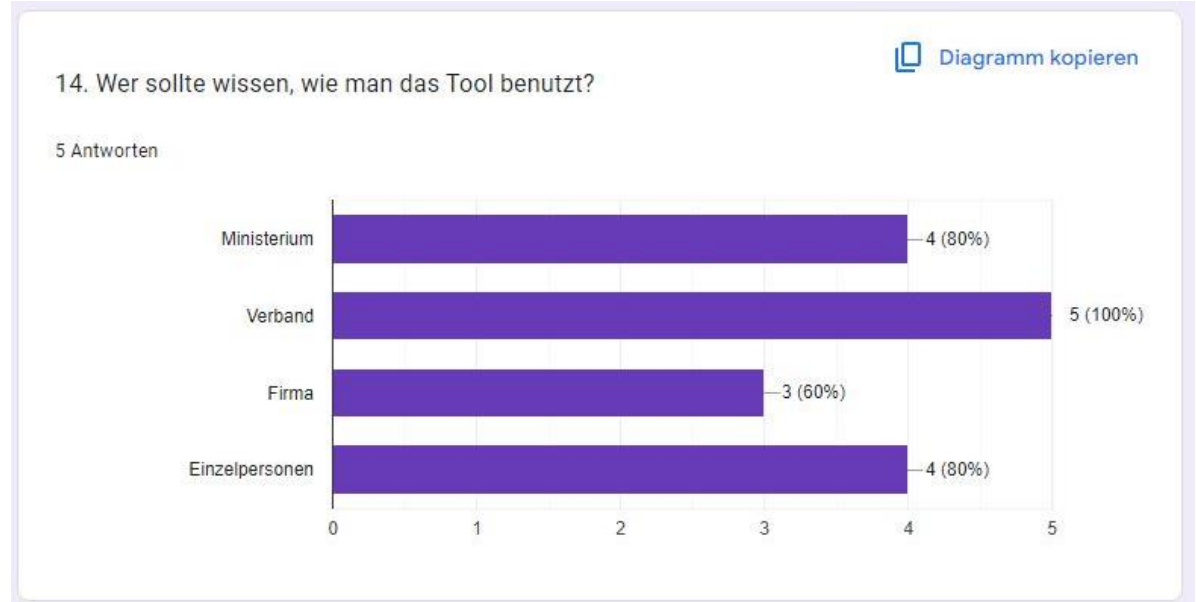


Ownership 60% associations, 20% others



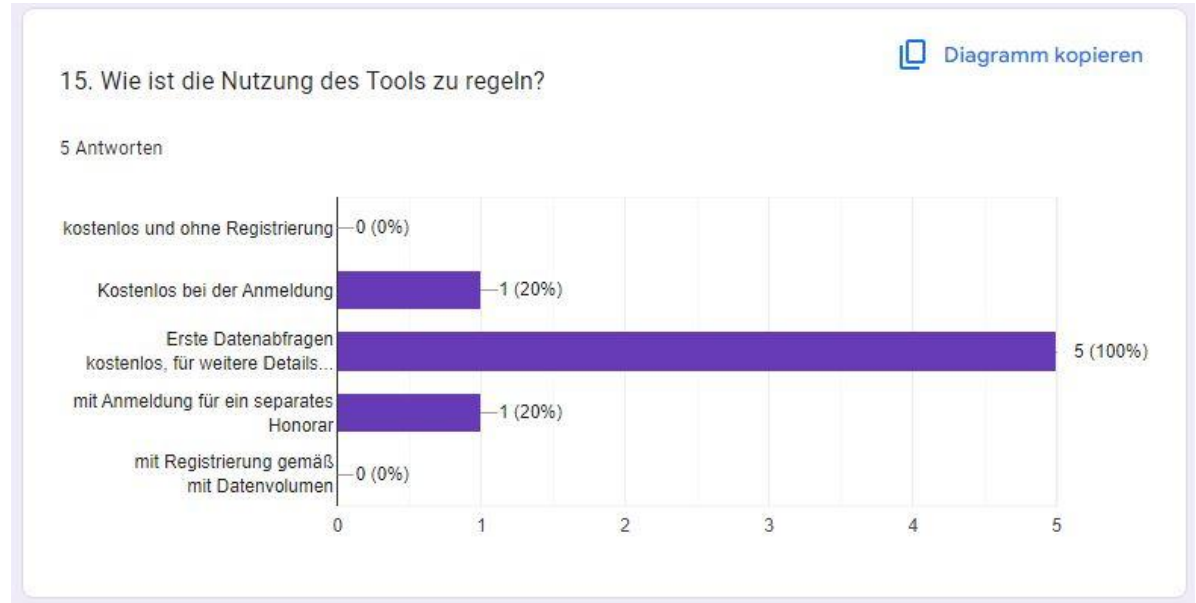
Who should be able to use the tool?

Users 80-100% associations, ministries, private



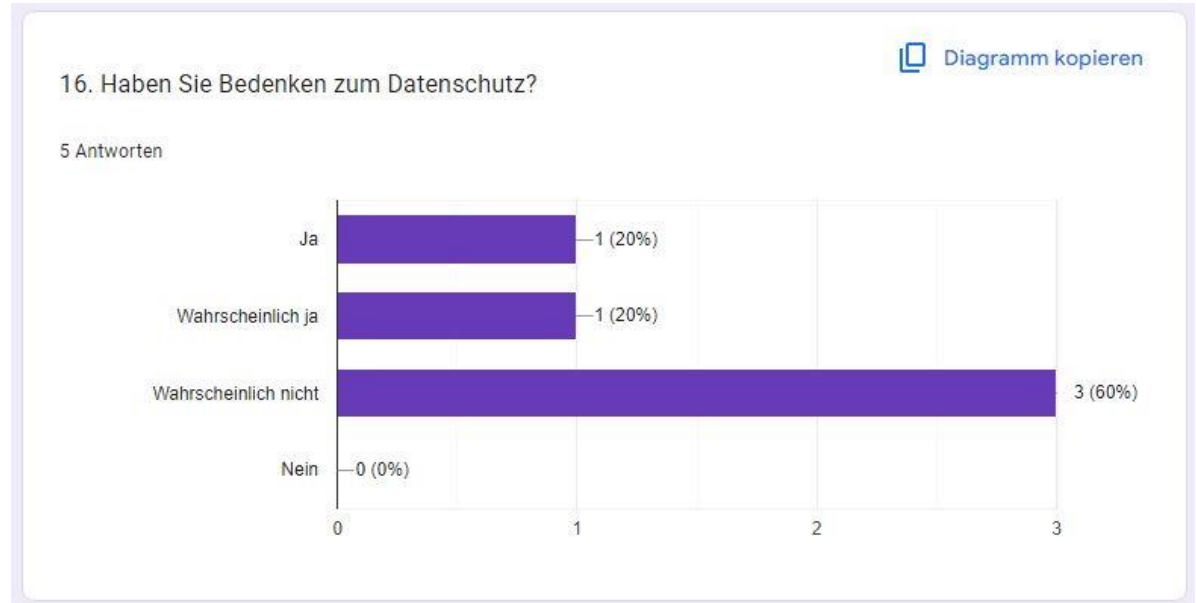
Has the use of the tool to be payed?

100% deeper information chargeable



Any concerns about data protection?

60% probably no concerns on data protection



The main thing is that the budget is not stolen!

- Which budget?

17. Sonstige Kommentare/Beobachtungen, wenn Sie möchten um sie zu teilen?

1 Antwort

Hauptsache, das Budget wird nicht geklaut

Summary / challenges

- 60% start in Astana
 - 80% draft interactive map useful
 - 40% benchmark, management, invoicing
 - 100% data flow in both directions
 - 100% technical information, 0% EE
 - 100 % building data, 40% dwelling, 0% residents
 - 80% typological and 80% specific data
 - 75% support with content, 25% with finance
 - 100% available in 2025
 - 60% ownership associations
 - 80% open use, but focus on associations
 - 100% deeper information chargeable
 - 60% probably no concerns on data protection
- Energy Efficiency Map without information on energy efficiency?
 - Typological building data or specific data?
 - Support with content, not with finance.
 - Very fast development in 2025 expected!

**Thank you for
your attention.**

Thilo Cunz, Director
International Building & Construction

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