**Supplementary file 1. Short descriptions of the city labs that participated in the interviews and workshops**

*Maastricht-LAB:* This city lab in the city of Maastricht was set up in 2012 by the department of spatial planning of the municipality of Maastricht as a temporary co-creation platform for local experimentation and learning by doing, in order to stimulate a transition towards novel modes of urban development. The city lab has been run for years by an internal and an external coordinator. Past experiments focused on small-scale urban development and concerned the repurposing of empty buildings, temporary use, and urban green space development. In a second phase, Maastricht-LAB shifted its role as initiator to the facilitation of bottom-up initiatives. (https://maastrichtlab.nl)

*Stadslab Luchtkwaliteit:* This city lab in the city of Rotterdam was set up in 2014 and designs experimental interventions in the urban space in order to make fine dust and its consequences for air quality visible and palpable. Run by a diverse and voluntary team consisting of a.o. designers, architects and an ecologist, the experiments serve above all as an educational, communicative and connecting tool to simulate (joint) action for the improvement of the city’s air quality. The designers produce ceramic products of the collected fine dust. (https://www.stadslabluchtkwaliteit.nl)

*Stadslab Nijmegen:* This city lab in the city of Nijmegen is a joint initiative of local associations, coordinated by a local design office, and provides since 2015 support to bottom-up initiatives. The city lab developed a methodology to embed citizen initiatives in spatial planning processes, and has built up a local network with relevant knowledge for urban planning. (https://lentekracht.com/stadslab-nijmegen)

*Stadslab Water in de Dordtse Ruimte:* Initiated by a local platform for sustainability, this city labs in the city of Dordrecht consisted of two editions (2015-2016) with as aim to increase the focus on water in streets, gardens and on squares. In the first edition, the city lab participated in the placemaking trajectory concerning the re-development of a city square and contributed relevant knowledge to tackle water-related issues in the final design. This experience lead to a second edition, in which the city lab tried to contribute to make the entire urban area greener, more beautiful and water-friendly. (<https://www.platformduurzaamdordrecht.nl/projecten/voedsel-groen/stadslab-water-in-de-dordtse-ruimte-20>)

*Stadslab ZOHO Rotterdam*: This city lab in the city of Rotterdam consists of an active group of local residents and entrepreneurs contributing since 2016 to the experimental and temporary use of buildings in the so-called Zoho district and the future urban development plans. The citizen initiative now got a role in the tender procedure for the future permanent use of buildings in this area. (https://zohorotterdam.nl/zoho-2040-4/)

*'t Lab van Weert* *(now: Stadslab0495):* This city lab in the city of Weert was set up in 2018 by the department of culture to address future challenges of the city in a creative and co-creative way. In its attempts to involve local residents, this city lab focuses above all on the creative sector. Past experiments have focused on the re-development of the city park, the city center and poverty issues. The city lab is run by a coordinator of the municipality. (<https://stadslab0495.nl>)

**Supplementary file 2. Translated survey questions as distributed to city labs**

**Part 1: The city lab in the picture**

What is the name of your city lab?

What is your role in the city lab?

For how long does your city lab exist?

Who is coordinating your city lab?

Is your city lab accountable to anyone? To whom?

Who pays for the city lab and its activities?

Who gets paid for city lab activities?

Who does voluntary and unpaid work for your city lab?

Does your city lab have a thematic focus? If yes, which one?

Has that focus changed in the past (if so, how and why?)

**Part 2: Experimenting**

In this research we see an “experiment” as a project in which an important (primary or secondary) goal is to learn from it.

Do you undertake activities that you could call experiments in the sense above?

If so, can you give a few examples - very briefly?

If not, why not?

Do you use the term "experiments" yourself?

If so, does it have the same meaning as above?

If not, why? And which term do you use instead?

**Part 3: Setting up an experiment**

Do you experience problems in setting up experiments?

If so, can you describe them briefly?

Do the experiments share an overarching goal?

Do the experiments share a thematic focus?

How is the thematic focus of an experiment chosen?

Do the experiments share a focus on a particular area of ​​the city?

How is the area focus of an experiment chosen?

Do you jointly decide in advance what you want to learn about?

How are experiments funded?

Do you follow a specific approach or step-by-step plan for setting up and conducting experiments? If so, please explain briefly. Do you find some of the steps of your approach difficult to take?

Are there certain activities that recur in every experiment (If so, which ones, and for what purpose?)

Who initiates experiments?

Who coordinates setting up an experiment?

Who decides who gets involved?

Are there people who are always/mostly involved?

Are there people you would like to involve, but you do not succeed in doing so?

Are there people you would prefer not to be involved?

What support would you need for setting up experiments?

**Part 4: Conducting an experiment**

Do you experience problems with conducting experiments?

If so, can you describe them briefly?

Who coordinates the execution of an experiment?

Who decides who gets involved?

Are there people who are always/mostly involved?

Are there people you would like to involve, but you do not succeed in doing so?

Are there people you would prefer not to be involved?

Are experiments evaluated during runtime? If so, how?

Have you changed the approach of an experiment during runtime in the past? If so, please provide an example with the reason for the change.

How long do experiments usually take?

Have past experiments been aborted? If so, why?

When does an experiment end?

Do you have "room to fail" in your experiments?

Do experiments sometimes fail? If so, can you give a few examples - very briefly?

What support would you need for conducting experiments?

**Part 5: Learning from experiments**

Do you evaluate an experiment after completion?

How do you evaluate an experiment and who is involved?

When do you consider an experiment to be successful?

Are you drawing lessons for the future?

Do you follow a step-by-step plan or protocol for drawing lessons?

(If so, please describe it briefly)

Do you ever compare lessons from different experiments? How?

Are lessons written down somewhere or otherwise documented?

Are lessons shared? How and with whom?

Do you follow-up on lessons?

Do you follow the follow-up of lessons?

What support would you need for learning from experiments?

**Part 6: 16 statements on experimentation by city labs** (to be scored on a 5-point Likert scale - ‘completely agree’, ‘agree’, ‘undecided’, ‘disagree’, ‘completely disagree’ - plus a ‘non-applicable’ option.

1. We find it easy to set up experiments.
2. The duration of our experiments is mostly too short.
3. We succeed in involving all relevant parties in an experiment.
4. Groups difficult to reach for urban development projects are also difficult to reach for experiments.
5. The municipality intervenes a lot in our experiments.
6. Those who set up an experiment are usually the ones executing it.
7. We have sufficient budget for conducting our experiments.
8. Participating parties often disagree about the goals of an experiment.
9. Other participants often find the role of the municipality unclear.
10. Our experiments often conflict with existing regulations.
11. We actually prefer our experiments not to fail.
12. We take sufficient time for drawing lessons.
13. We are learning too little from our experiments.
14. Lessons from experiments are relevant for the entire city.
15. Lessons from experiments find their place.
16. We need a more structured approach for setting up, conducting and learning from experiments.

**Supplementary file 3. City labs that participated in the survey**

|  |  |
| --- | --- |
| **City Lab** | **City** |
| Buiksloterham Circulair | Amsterdam |
| De Dépendance | Rotterdam |
| Energiefabriek  | Apeldoorn |
| GOUDasfalt | Gouda |
| Impact Lab  | Leiden |
| InvesteringsMaatschappij Binckhorst | Den Haag |
| Maastricht-LAB | Maastricht |
| Spijkerlab | Arnhem |
| Stadslab Breda | Breda |
| Stadslab Cool-Zuid | Rotterdam |
| Stadslab Luchtkwaliteit | Rotterdam |
| Stadslab Maashaven | Rotterdam |
| Stadslab Nijmegen | Nijmegen |
| Stadslab Water in de Dordtse Ruimte | Dordrecht |
| Stadslab ZOHO | Rotterdam |
| Suikerterrein  | Groningen |
| 't Lab van Weert  | Weert |

**Supplementary file 4. Responses to the 16 closed questions**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  | Completely agree | Agree | Undecided | Disagree | Completely disagree | Not applicable | Total |
| 1 | We find it easy to set up an experiment | 2(16.67%) | 6(50.00%) | 2(16.67%) | 1(8.33%) | 0(0.00%) | 1(8.33%) | 12 |
| 2 | The duration of experiments is mostly too short | 0(0.00%) | 0(0.00%) | 4(33.33%) | 5(41.67%) | 2(16.67%) | 1(8.33%) | 12 |
| 3 | We succeed in involving most relevant stakeholders | 0(0.00%) | 2(16.67%) | 5(41.67%) | 4(33.33%) | 0(0.00%) | 1(8.33%) | 12 |
| 4 | Group that are difficult to reach for urban development projects are also difficult to involve in experiments | 0(0.00%) | 8(66.67%) | 1(8.33%) | 0(0.00%) | 2(16.67%) | 1(8.33%) | 12 |
| 5 | The municipality engages a lot with our experiments | 1(8.33%) | 1(8.33%) | 4(33.33%) | 4(33.33%) | 1(8.33%) | 1(8.33%) | 12 |
| 6 | Those people setting up an experiment are also the ones carrying it out | 3(25.00%) | 7(58.33%) | 1(8.33%) | 0(0.00%) | 0(0.00%) | 1(8.33%) | 12 |
| 7 | We have sufficient budget for carrying out experiments | 0(0.00%) | 3(25.00%) | 2(16.67%) | 2(16.67%) | 3(25.00%) | 2(16.67%) | 12 |
| 8 | Participating actors do often not agree on the goals of an experiment  | 0(0.00%) | 0(0.00%) | 3(25.00%) | 5(41.67%) | 2(16.67%) | 2(16.67%) | 12 |
| 9 | Other participants often lack clarity about the role of the muncipality | 0(0.00%) | 4(33.33%) | 2(16.67%) | 3(25.00%) | 0(0.00%) | 3(25.00%) | 12 |
| 10 | Our experiments are often obstructed by existing regulations | 0(0.00%) | 5(41.67%) | 0(0.00%) | 5(41.67%) | 1(8.33%) | 1(8.33%) | 12 |
| 11 | We actually do not wat our experiments to fail | 0(0.00%) | 1(8.33%) | 2(16.67%) | 4(33.33%) | 3(25.00%) | 2(16.67%) | 12 |
| 12 | We take sufficient time for taking lessons | 0(0.00%) | 5(41.67%) | 3(25.00%) | 3(25.00%) | 0(0.00%) | 1(8.33%) | 12 |
| 13 | We learn too little from experiments | 0(0.00%) | 0(0.00%) | 5(41.67%) | 5(41.67%) | 1(8.33%) | 1(8.33%) | 12 |
| 14 | Lessons from experiments are relevant for the entire city | 2(16.67%) | 5(41.67%) | 3(25.00%) | 0(0.00%) | 0(0.00%) | 2(16.67%) | 12 |
| 15 | Lessons from experiments find their place | 0(0.00%) | 5(41.67%) | 4(33.33%) | 1(8.33%) | 1(8.33%) | 1(8.33%) | 12 |
| 16 | We need more structured approaches for setting up, carrying out and learning from experiments | 1(8.33%) | 1(8.33%) | 1(8.33%) | 5(41.67%) | 2(16.67%) | 2(16.67%) | 12 |