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Research article

# Participatory action research to address sustainability challenges: barriers and solutions

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ABSTRACT

Participatory Action Research (PAR) offers a context-specific approach to sustainability challenges that enables citizens and other stakeholders to co-research a shared complex issue and co-create and co-realize suitable action plans. Promising results from using PAR to address sustainability challenges have been reported in the literature, but as yet the approach is not widely used. To understand contextual barriers to implementing PAR and find potential solutions, we interviewed sustainability experts in the Netherlands with PAR experience or otherwise connected to PAR. We found a variety of barriers for different actors operating within organizations dealing with sustainability issues, and we identified potential solutions to remove them. We propose four solution pathways (Systemic Autonomy, Practical, Systemic Inspirational, and Awareness) for PAR practitioners and proponents, each referring to one type of actor. By identifying these barriers and solutions we aim to inspire more holistic perspectives on, and support for, the application of PAR to address complex sustainability problems.

## 1. Introduction

There is widespread recognition among scholars and policy practitioners that public participation in policy development is crucial for environmental governance and to address complex sustainability challenges (e.g., Mees et al., 2018, Newig et al., 2018, Uittenbroek et al., 2019, Goda and Lorenzo, 2020, Perlaviciute and Squintani, 2020, Taylor et al., 2020, Uittenbroek et al., 2022, Newig et al., 2023). Over time, more and more participatory approaches have been developed, implemented, and examined in response to growing interest in public participation. A classification of approaches based on the field of application is as follows. Community-oriented approaches focus on livelihoods, wellbeing and community development include asset based community development (Russel, 2020), participatory learning and action; and participatory rural appraisal (evolved from rapid rural appraisal) (Chambers, 2008). There are participatory organizational development methodologies, for example: appreciative inquiry; action learning; soft-systems methodology; and design thinking. Collaborative approaches between citizens and town halls include the right to challenge and "real-life" experiments such as living labs. Imagination and techniques of futuring (Hajer and Pelzer, 2018) are both participatory future-oriented approaches, as is scenario thinking. But to complicate matters, many of these participatory approaches can be deployed across domains, i.e. in different fields of application. The participatory approaches used specifically to address sustainability issues include farmer to farmer learning (Mills et al., 2019), community forest management (Barnes et al., 2017) and participatory guarantee systems (Kaufmann et al., 2020). Like public participation for making policy on sustainability, the importance of public participation in research on sustainability is widely acknowledged in the literature (e.g., Hartley and Wood, 2005; Doelle and Sinclair, 2006; O'Faircheallaigh, 2010; Glucker et al., 2013), as the complexity of such research needs to be addressed by drawing on different types of knowledge (e.g., Abson et al., 2017).

In practice, making public participation effective has turned out to be difficult and appears to come with many challenges and risks (Michels and De Graaf, 2017; Chambers et al., 2021; Fischer et al., 2021; Gignac et al., 2022). First, opinions diverge about the precise meaning, objectives, and adequate representation of public participation (Glucker et al., 2013). Second, participation in research and participation in governance are often seen as two separate activities, with public

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participation in research aiming at co-creating knowledge (Stirling, 2008) while public participation in governance aims at co-creating collective action (Driessen et al., 2012). Third, the degree and form of participation can vary, both in research (Cornwall and Jewkes, 1995) and governance (Arnstein, 2019) which may contribute to the overall confusion about the concept and practical challenges of participation.

An approach explicitly combining the co-creation of knowledge and collective action is participatory action research (PAR). It is a context-specific approach involving citizens and other stakeholders to deal with a shared complex issue from the outset, allowing them to co-research the issue, which leads to the co-creation of knowledge that forms the basis for the co-creation and co-realization of suitable action plans by those citizens and other stakeholders (e.g., Stringer, 2014; Apgar et al., 2017; Eelderink et al., 2020).

*Participation* in PAR implies that all stakeholders, regardless of their background, collaboratively think and work together in a horizontal manner to address shared issues (Knapp et al., 2019); the approach sees all involved in a particular issue as agents (rather than objects) who can analyze their own situations and design and implement their own solutions, when systemically guided by professional participatory action researchers. This means that PAR respects the different types of knowledge of all involved (Cornwall and Jewkes, 1995; Smeenk, 2019). It enables these actors to set their own agendas for research and development. In doing so, the approach supports a sense of ownership among them of the actions to be taken. In PAR, the researchers become learners and facilitators, catalysts in a process which takes on its own momentum as actors come together to analyze and discuss things that matter to them (Stringer, 2014; Apgar et al., 2017). *Action* in PAR refers to the actual change PAR enables through its process, in which all actors play a role in the actions required to address their shared issue. *Research* in PAR focuses on generating 'knowledge for action' (Stringer, 2014; Apgar et al., 2017). This combination of participation, action, and research means that PAR offers a promising approach to address sustainability issues.

Also from case reports in literature it seems that PAR is a fruitful methodology for addressing sustainability issues. Several cases have been reported of PAR being used to address sustainability issues where citizen participation takes on a predominant role, with mainly positive results for the ecosystem involved as well as for local communities. Examples include PAR for agroforestry (e.g., Bayala et al., 2021; Ciaccia et al., 2021) and forest management (e.g., Bekele and Ango, 2015; Schmitt Filho and Farley, 2020), climate change (e.g., Godden et al., 2020; Markphol et al., 2021; Muller and Wood, 2021; Vasseur, 2021), sustainable fisheries (e.g., Gómez and Maynou, 2021; Eelderink et al., 2020), sustainable tourism (e.g., García Sanchez et al., 2020; Goebel et al., 2020), sustainable agriculture (e.g., Soto et al., 2021) and agro-biodiversity (e.g., Gaba and Bretagnolle, 2020; Scaramuzzi et al., 2021), air quality (e.g., Gustafson, 2021; Nolan et al., 2021), energy transition (e.g,. Revez et al., 2020) aquatic agricultural systems (e.g. Apgar et al., 2017), littering (Matsekoleng, 2020) and sustainable viticulture (Masson et al., 2021). PAR has been linked with initiatives focused on improved human–wildlife interactions (a reduction in crop raiding, improved farmer livelihoods and cooperation among different stakeholders: Kolinski and Milich, 2021), improved cooperation of fishermen to improve the health of the marine ecosystem (Eelderink et al., 2020), and has mobilized long-term collaborations between winegrowers and other stakeholders despite differing visions of viticulture and the environment (Masson et al., 2021).

Given these positive examples of the potential of PAR to contribute to solving sustainability issues, one would expect PAR to be widely used by researchers, practitioners, and policymakers working on sustainability issues. The examples highlight isolated cases, however, and we have found no evidence of more widespread and systematic adoption of PAR in this field. Opting for PAR seems to be hampered by barriers residing within organizations that are only partially understood. For the practical execution of PAR in general though, there are some challenges mentioned in the literature: the process is time-consuming (e.g., Groot Kormelinck et al., 2021; Vasseur, 2021), requires expert-level skills in facilitation (Mackenzie et al., 2012), and is hard to control (Pohl and Hirsch Hadorn, 2008; Rosenthal and Khalil, 2010); its results are unpredictable, intangible, and sometimes indeterminate upfront (Pohl and Hirsch Hadorn, 2008; Home and Rump, 2015); and finally, hard to assess and evaluate (Home and Rump, 2015). These challenges make professionals working on sustainability issues reluctant to opt for PAR: for example, when their funders expect tangible, measurable results (Home and Rump, 2015). Challenges also arise when recruiting participants, securing their informed consent, and managing expectations (Rosenthal and Khalil, 2010). Importantly, in the aforementioned paper on PAR in the context of HIV and poverty the authors note a problematic situation: "in order to be empowered, people need to take part, but in order to take part, they need to be empowered" (Rosenthal and Khalil, 2010, p.75). In line with this they argue that when people are pessimistic of their chances of succeeding, they will be less likely to take part in PAR. Given the magnitude of most sustainability problems, people may be reluctant to join PAR as they perceive their chances of succeeding in solving these problems to be poor. Once they are participating in PAR, however, it has been suggested (Savin-Baden and Wimpenny, 2007, p. 341) that "[their] confidence is likely to increase, with the notion that what they have to offer is valued". This increasing sense of agency among PAR participants is a promising development for addressing sustainability issues where societal actors need to take on an active role.

The aim of this paper is to provide answers to the questions: 1) *How do barriers to the implementation of PAR manifest in sustainability practice, and 2) what are solutions to overcome these barriers and optimize the use of PAR in sustainability efforts?* To study this, we engaged with a variety of actors associated with PAR in the Netherlands, where the need for public participation in governance is widely acknowledged. Dutch citizens are increasingly expected to take part in addressing public issues such as climate change (Hajer, 2011). Public participation in research and in governance in the Netherlands is therefore increasingly institutionalized and anchored (e.g., Mees et al., 2018; Newig et al., 2018; Perlaviciute and Squintani, 2020; Uittenbroek et al., 2022). Based on these notions, one would expect that PAR would be the obvious approach for Dutch organizations to use to address sustainability issues, yet little has been published on this. Although all the interviewees we recruited are Dutch, some of them are part of international networks, so our findings could also be relevant in other highly institutionalized contexts in Europe, where participation is at the heart of all kinds of policy developments.

## 2. Methods

In order to identify the gap to which our research findings could contribute, this research commenced by reviewing the literature on the application of PAR to complex sustainability issues and the barriers to its application faced by actors involved in addressing sustainability issues. We then conducted seventeen in-depth semi-structured interviews with professionals who met at least two of the following criteria: 1) they worked in or were familiar with large governmental or non-governmental organizations, as addressing sustainability challenges often involves these large organizations, 2) they were a PAR practitioner (i.e., someone who actively applies PAR methods in real-world settings) or were familiar with participatory approaches, and 3) they worked on sustainability challenges such as the energy transition or nature protection at the time of interviewing. For example, we interviewed a town clerk (meeting criteria 1 and 3), a policy advisor at the Ministry of Economic Affairs and Climate Policy (meeting all criteria) and the director of a small NGO working in the field of environmental criminology (meeting criteria 2 and 3). Table 1 presents the respondents along with the criteria they met and the interpretive lens through which they engaged with our questions. Sustainability governance in the Netherlands, in particular networks of people meeting the above-mentioned criteria, is small and relatively well connected. The lead

**Table 1**
Overview of our respondents, including the selection criteria they met and the perspective from which they responded to the questions.

| Respondent # | Criteria met | Perspective |
|---|---|---|
| 1 | all | Project Funding |
| 2 | 1 and 2 | Strategic |
| 3 | all | Political |
| 4 | 2 and 3 | Project Funding |
| 5 | 1 and 2 | Change management |
| 6 | 1 and 3 | Business |
| 7 | 2 and 3 | Project Funding |
| 8 | all | Provincial government |
| 9 | 2 and 3 | Project Funding |
| 10 | 1 and 3 | Business |
| 11 | all | National government |
| 12 | 2 and 3 | Project Funding |
| 13 | 2 and 3 | Environmental criminology |
| 14 | 1 and 3 | Nature conservation |
| 15 | 2 and 3 | Project Funding |
| 16 | 2 and 3 | Participatory Action Research |
| 17 | 2 and 3 | Project Funding |

author is a participant in these networks as a practitioner, and therefore we could use the lead authors networks to identify first participants who meet these criteria. Then we used snowballing to get other participants involved. The perspectives of these participants are crucial for understanding the barriers, as they either experience these barriers directly or observe them within other actor groups and are therefore well-positioned to propose the most suitable solutions.

The interviews -conducted in Dutch-elicited the interviewees' current situation, desired situation, needs, assets, and potential solutions. We asked the interviewees about the barriers they perceived to using PAR in policymaking and practice (i.e., the current situation) and asked what they would like to see happening (i.e., the desired situation). We sought their insights into potential solutions for overcoming these barriers and the factors to consider in the process, i.e., what could or should be done within governmental and non-governmental organizations to increase the use of PAR and PAR-like approaches to address sustainability issues. Additionally, we inquired about the necessary requirements (i.e., needs) and identified assets or opportunities that could be utilized to realize these solutions. To be able to adapt our inquiries to interviewees' responses, we did not use a structured questionnaire. This flexible approach enabled us to gather rich data and facilitated a more comfortable and smoothly flowing interview process. Interviewees provided perspectives based on their roles, discussing both the challenges they face in implementing PAR in their work as well as barriers others may encounter. Barriers and solutions interviewees identified for other actors rather than for themselves were assigned to the actor category they related to. We believe these insights into the roles of others are valuable and should be recognized. Therefore, while presenting the results, we categorized them according to different roles, where these roles do not always represent the individuals who described them. All interviews were transcribed for analysis. Excerpts in this paper are translated from Dutch to English.

We processed our data using thematic content analysis and framework analysis (both as described by Green and Thorogood, 2014) and causal chain analysis (Maxwell, 2004). First, based on our transcripts we iteratively developed codes (each of which had two or three subcodes): current situation (subcodes "how PAR" (i.e., what type of PAR), "why PAR" and "barriers"), desired situation (subcodes "wish" and "expectation"), needs (subcodes "circumstances" and "capacity"), assets (subcodes "opportunities" and "lever"), and solutions ("action perspective" and "action"). Per interviewee, we placed all interview fragments resulting from this coding exercise under these codes, using each mentioned barrier as a reference for an entire argumentation line, i.e. one row in our data sheet (including desired situation, needs, assets and solutions provided that they were mentioned relating to respective barrier). We linked the mentioned barriers within each line of argumentation to a theme (i.e., thematic content analysis). Then, we filtered our data in order to compare our interviewees in terms of the type and quantity of codes assigned to them per theme (i.e., framework analysis). For the scope of this paper, we focused mainly on the codes "barriers" and "solutions" and used the other codes as background information. We found 32 main barriers to using PAR and 20 main suggested solutions for fostering the use of PAR. After attempting to categorize our data in different ways, both inductive and deductive, we opted for a classification that makes clear the type of person experiencing the barrier: staff, executive, funding actor, policy actor, or independent professional. All of these actors experience different types of barriers. By staff, we mean employees executing policy, in organizations dealing with sustainability issues such as NGOs, governmental organizations, research institutes, and companies. By executives, we mean the persons in authority in such organizations. By funders, we mean people representing organizations that fund sustainability projects (including research projects) and are most closely linked with those projects. By policy actors, we mean individuals involved in the development, implementation, or influence of public policy, including elected officials and non-elected policymakers or advisors. The "independent professional" category refers to the two independent PAR practitioners among our interviewees: an independent change manager, and the founder of an NGO, who operates alone. These independent professionals are hindered by the barriers and shared their perspectives, yet they are not within the environment where the barriers take place and are therefore not addressed separately in the results section.

Finally, we conducted causal chain analysis (Maxwell, 2004), aiming to construct a comprehensive network of interconnected cause-and-effect relationships that reflects our interviewees' perspectives and experiences. For example, if one interviewee mentioned that "A causes B" and another stated that "B leads to C," we connected these statements to form a broader chain of causality, illustrating the overall relationships within the dataset. This approach enabled us to synthesize individual insights into a collective, cohesive understanding of the underlying causal mechanisms present in the data, which we presented in a visualization. We also analyzed how and where the mentioned solutions could interfere with certain barriers and presented the results in a second visualization. We created solution pathways: chains of solutions that address chains of barriers. To help answer our main research question, the outcomes were then interpreted and compared with those found in the literature.

## 3. Results

Below, we present the barriers—in chains of causes and effects—to opt for PAR to address sustainability issues, and the solutions for tackling those barriers, both as seen from the perspective of our interviewees. These connections are presented schematically per actor, to 1) help actors locate where they are in the scheme and 2) to see connections between the challenges associated with different actor roles. Depicting which solutions can break which part of the causal chain can help stakeholders in favor of PAR or similar participatory approaches determine what they can do, when, and in what order, to tackle one or more barriers so more opportunities for applying PAR or similar participatory approaches can be created. Barriers and solutions are first presented schematically per actor (Figs. 1–8, which are then combined into two main figures, one combining the barriers experienced by the different actor groups (Fig. 9) and one that connects the proposed solutions to those barriers (Fig. 10).

### 3.1. Barriers for staff

Interviewees claimed that despite the substantial increase in the number of sustainability-focused NGOs and foundations in the past decade, fewer monetary resources have been flowing toward these organizations (Fig. 1, top left outlined box).

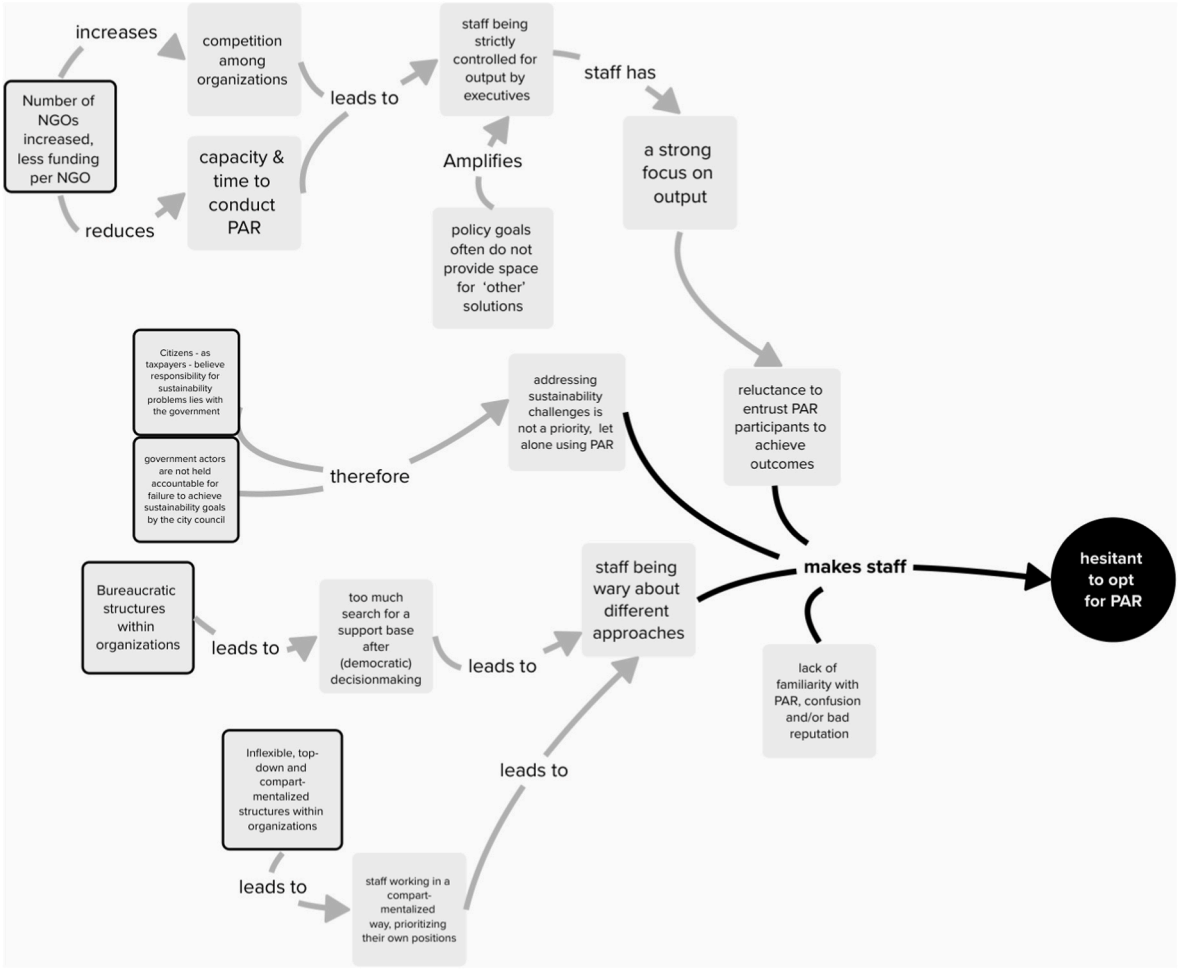


**Fig. 1.** Barriers discouraging staff from opting to use PAR to address sustainability issues. The outlined box represents the start of a barrier chain.

The combination of reduced funding and more demand increases competition for funding among organizations that may want to apply PAR. At the same time, having limited funds reduces the capacity to implement PAR. As one interviewee (a policy advisor at the Dutch ministry of economic affairs and climate) claims,

> "Most people think that the [PAR process] takes too long and that they don't have time for it. But right now, they're actually wasting a lot of time dealing with the resistance from the local population. […] The [PAR process] doesn't actually take too long, but the perception is that it does. […]I think this is related to political pressure. A lot of priorities are set based on political urgency."
>
> (Policy actor).

Consequently, executives want to keep too much control over projects, and employees are not given freedom to go their own way or experiment, and their output is scrutinized. The strict rational, outcome-focused work ethic resulting from this desire for control, does not align with the "soft" character of PAR, where "soft" is defined by our interviewees as hard-to-measure outcomes such as social learning, awareness raising, improved networks, and enhanced communication. This supervised output is amplified by policy goals that often do not provide space for "other" solutions, possibly because of lack of funding (see section 3.3). This output-focused work ethic results in reluctance to apply a core feature of PAR: to entrust PAR participants to achieve outcomes, which makes staff hesitant to opt for PAR as a methodology to address sustainability issues. Interviewees mentioned a second barrier, originating from outside the organization: whereas citizens (i.e., taxpayers) tend to believe that dealing with sustainability problems is the government's responsibility (Fig. 1, left, second outlined box from above), while government actors are often not held accountable for not achieving sustainability goals by the city council. Therefore, addressing sustainability issues is not a priority, let alone using PAR as it assigns responsibility to both citizens and government. As a result, staff has no space to use such participatory approach. A third barrier for staff in terms of working with PAR is the bureaucratic structures within an organization (Fig. 1, left, third outlined box from above), which leads to a work ethic of endlessly searching for a support base after (democratic) decision-making. This makes staff wary of different approaches such as PAR. Similarly, as a fourth barrier, the inflexible, top-down and compartmentalized structures (including those related to funding) within organizations (Fig. 1, left, bottom outlined box) result in staff working in a compartmentalized way in which they are inclined to prioritize their own positions, making them wary about different approaches, especially as conducting PAR would transcend those compartments.

### 3.2. *Solutions regarding staff*

We identified a structure for the solutions for staff yielded by the interviews: the *Systemic Autonomy Pathway* (Fig. 2, blue boxes). The barriers for staff described above are perceived by our interviewees as originating from what they refer to as systemic and bureaucratic structures within organizations, as well as from society. Our interviewees suggested that the solution to tackle those barriers should start from these root causes. They suggest increasing the use of PAR through changing organizational structures. According to them, this starts with interventions to change systemic structures to provide more space for

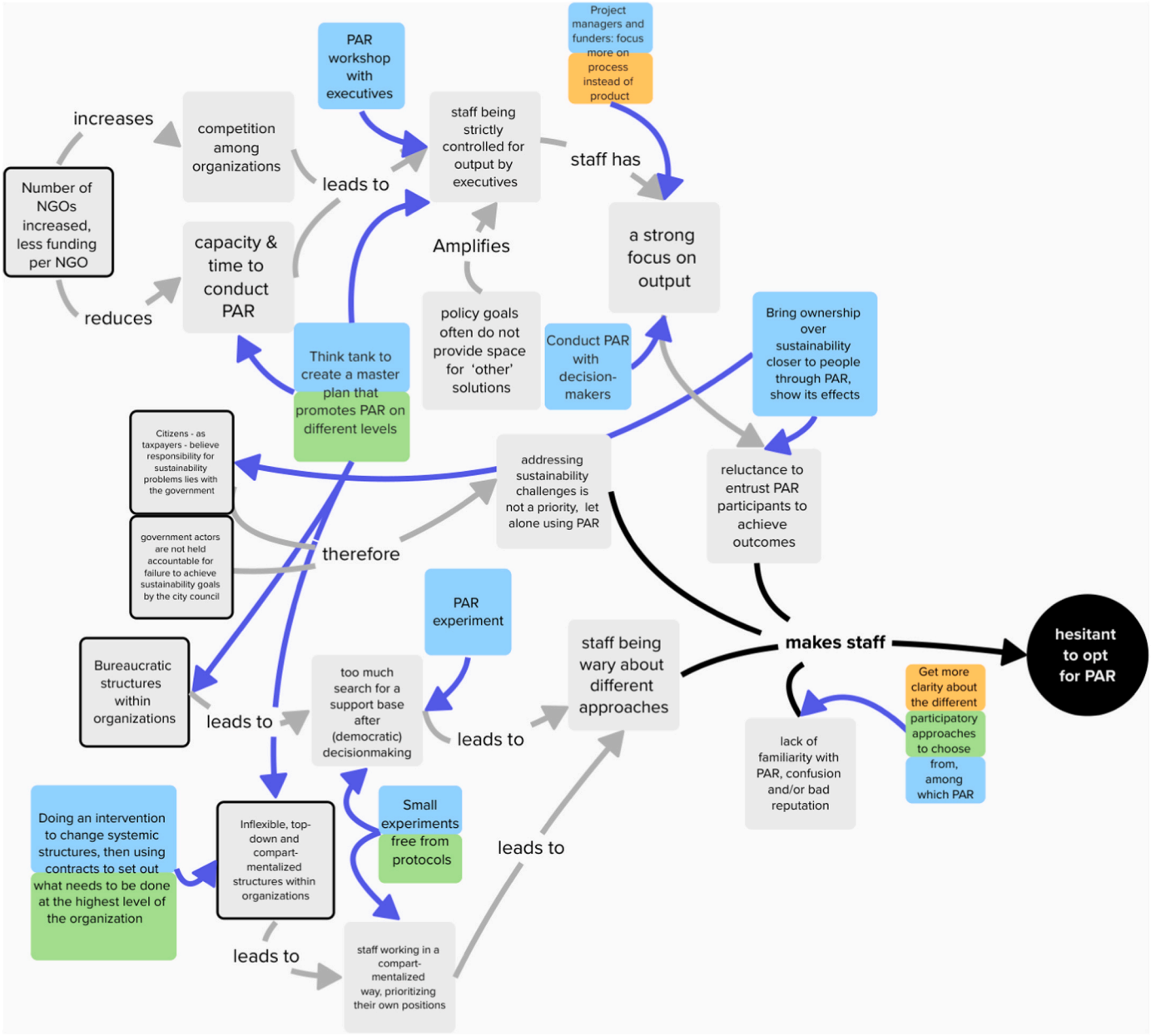


**Fig. 2.** Solutions proposed by interviewees to tackle barriers for staff to opt to use PAR to address sustainability issues, represented in blue boxes, connected by purple arrows: the Systemic Autonomy Pathway.

the ambiguous character of PAR and then using contracts to set out what needs to be done at the highest level of the organization, so that the organization's highest levels remain committed even if they encounter barriers (Fig. 2, bottom left, blue/green). This would ensure that they continue to support staff during PAR processes. According to one interviewee (a change manager), this solution is important because actors at these highest levels face all kinds of obstacles and may try to evade their obligations.

Another suggestion was to create a think tank comprising different actors such as the province, the national government, and entrepreneurs, and give it the remit to develop a master plan that promotes PAR on different levels (Fig. 2, middle, blue/green). The think tank should focus on increasing the time available and capacity to conduct PAR and encouraging the actors in authority to relinquish some of their control. This may not be enough to fully tackle the compartmentalization problem as well as the bureaucratic structures barrier, but one suggestion was to find an opening to conduct PAR or—as one interviewee suggested (Fig. 2, bottom middle, blue/green):

> "The system can't self-destruct, so something else is needed to wean us off our institutionalized way of thinking and acting. We see that this occasionally works in small experiments, where we have agreed: 'the protocols do not count here for a while'. In these experiments we have free space. [ …]so we dive into the topic, try out and test things and adapt along the way."
>
> (Policy actor)

For those searching for a support base after democratic decision-making experience, interviewees suggested to do a PAR "experiment" with them, to let them experience how creating a support base is already implicitly inherent in the PAR approach (Fig. 2, middle, blue). Another suggestion was to tackle the control barrier by letting executives experience the effects of PAR—i.e., when control has been relinquished—-through a PAR workshop (Fig. 2, top, left, blue). A PAR expert stated:

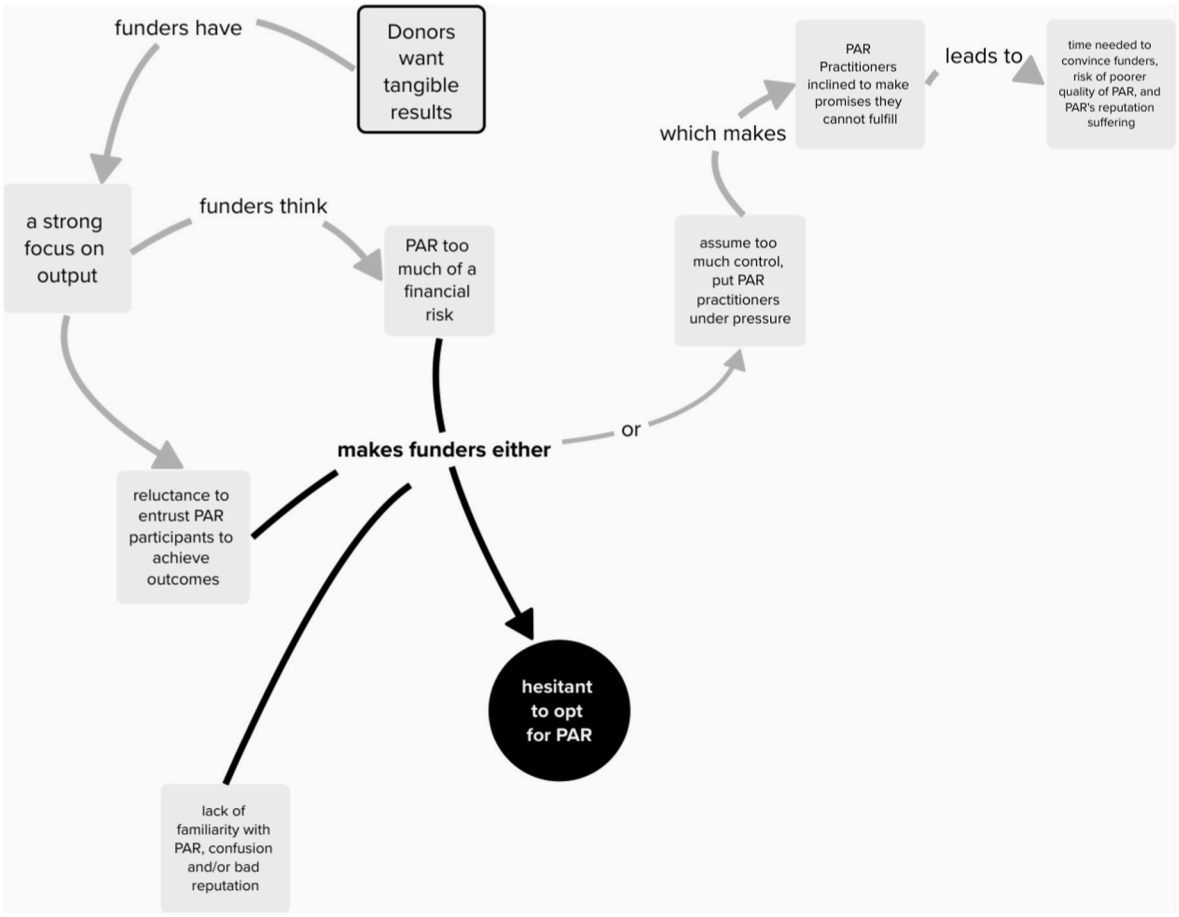


**Fig. 3.** Barriers preventing funders from opting to use PAR to address sustainability issues. The outlined box represents the start of a barrier chain.

> "what is needed is a different vision on policy, where at the level of the 'policy tower' policy is being made that creates space for PAR. Then, policy makers need to make policy in a different way: through social learning and a co-creative process with professionals and societal stakeholders, that is: through PAR."
>
> (Independent professional)

Interviewees also suggested involving decision makers as co-researchers when conducting PAR (Fig. 2, middle, blue), to find out how to create more space within the system for staff to conduct PAR in society.

A way to tackle the strict rational, outcome-focused work ethic in which the "soft" character of PAR does not fit and which results from the "too much control" barrier, is for project managers to start focusing more on processes instead of on products in project planning (Fig. 2, top, right, blue/orange). In this way, instead of allocating resources to a fixed *product*, resources would be invested in creating the space, time, and capacity to enable a *process of change*. In practice, this means that it should be appreciated that the actual PAR outcome remains uncertain (but well suited to the needs of those involved) until later stages of PAR and that lessons learned during the process will be valued more. In addition, the process should be allowed to fail. Shifting focus from product to process makes this easier, because if a process fails, the lessons learned can nonetheless be applied to other similar processes. If, despite the abovementioned efforts to change the work ethic, there is still reluctance to entrust PAR participants to achieve outcomes or to co-create outcomes—i.e., what happens in PAR—what is additionally needed is a mind shift from thinking "we [as people in authority] are going to develop an intervention that creates sustainability" to "let's bring ownership of sustainability closer to the people [i.e. citizens]". For that to happen, organizations need to opt for one or a few participatory approaches such as PAR and conduct these properly, so that people can see the effects (Fig. 2, middle, right, blue). This should also help citizens to become aware of how they can contribute in a way that does not conflict with their idea of only the government being responsible. To the problem of lack of familiarity with PAR, interviewees suggested to acquire more clarity about the different participatory approaches available, among which PAR (see also 3.3).

### 3.3. Barriers for funders

Our interviewees stressed that, like staff and their superiors, funding organizations are very outcome focused. This has to do with their board or their donors (who may be individuals or other organizations), who demand tangible outcomes (Fig. 3, top outlined box).

There is a major discrepancy between these donor demands and the open characteristics of PAR, where throughout the PAR process outcomes are first and foremost determined by the stakeholders directly linked to the sustainability issue. Consequently, funders who rely on output-demanding donors are mostly focused on a concrete, predefined product of a project and output-based metrics to assess whether practitioners meet their expectations. One of our interviewees explained:

> "Funders want to know in advance what the output of a project will be because then they can justify why they are spending money on it. That's either their own money, where they often must deal with a board they have to convince, or their donors' money, so they then have to convince their donors".
>
> (Independent professional)

This tension to having predefined outcomes is particularly

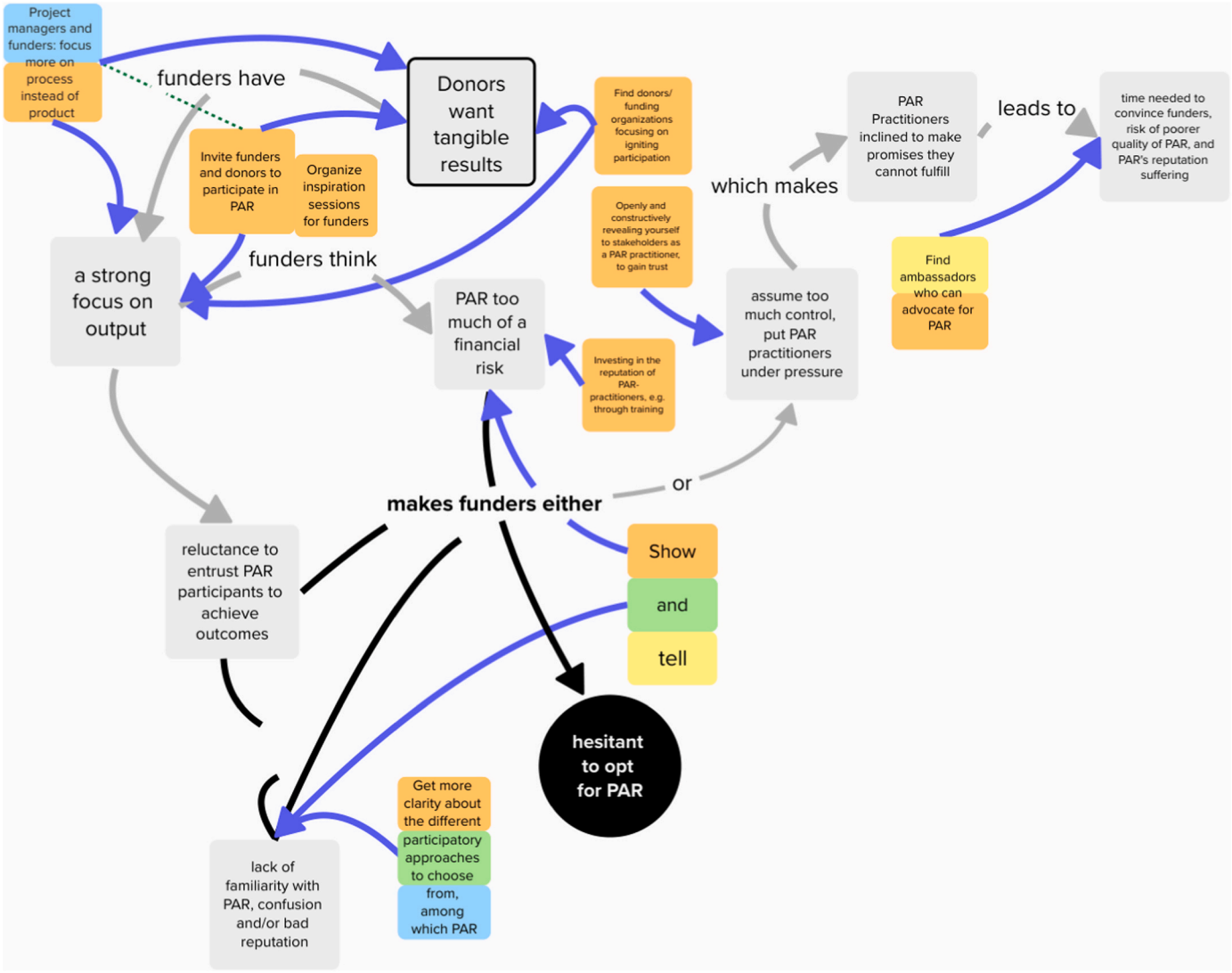


**Fig. 4.** Solutions proposed by interviewees to tackle barriers for funders to tackle barriers to opt for PAR to address sustainability issues, represented in orange boxes, connected by purple arrows: the Practical Pathway.

problematic for PAR due to the complexity of the real world and the flexible, unpredictable nature of a PAR process. It makes opting for PAR projects too much of a financial risk for funders, making them hesitant to opt for or support PAR. If at all they do, they demand to have substantial control over a project, to an extent that makes it almost impossible for practitioners to conduct PAR. They exert pressure on PAR practitioners to produce specific tangible results which conflict with PAR's core principles, hence, to make promises they are not sure they can keep. If PAR practitioners nonetheless decide to conduct PAR, they require time to convince funders (e.g., to continue funding the PAR project) and so have less time to invest in the PAR project itself, which risks reducing the quality and subsequently the outcomes of PAR. Ultimately, PAR's reputation may suffer. Moreover, confusion about the meaning of PAR hampers its reputation. That is, if researchers do not understand the key principles of PAR, projects are called 'PAR projects' even though they are not. This can occur in two situations: 1) in case (when funders call for PAR), PAR is proposed by applicants without knowing what it entails, just for the sake of getting funding, or 2) when people just apply one or two principles of the approach and say "we are already doing PAR". The possible result is confusion about what PAR fully entails and/or it can give PAR a bad reputation. These pseudo-PAR projects, for instance, focus more on researchers observing social phenomena, combined with responsive evaluation. However, they do not include enough participation and action or other PAR principles to justify being called PAR projects. If these types of research do not lead to the actions and impact typical of PAR projects, PAR's reputation may suffer, potentially leading to two new barriers: 1) stakeholders—potential PAR participants—may be reluctant to join future PAR projects as they no longer trust there will be a good outcome and 2) there will be less likelihood of acquiring funding in the future.

### 3.4. *Solutions regarding funders*

Regarding funding actors, solutions are organized along the *Practical Pathway* (Fig. 4, orange boxes). The idea of starting to focus more on processes instead of products (output) in project planning, as mentioned earlier, also applies here, according to our interviewees (Fig. 4, top left, orange/blue).

By moving away from the product and instead valuing the process itself as a 'movement toward desired change', funders and donors can create more space for the ambiguous character of PAR. One way to achieve this is to invite them to participate in PAR, to let them experience and value this process (Fig. 4, left, orange). But who is going to fund that PAR? One of our interviewees proposed first organizing short inspiration sessions for funding actors (Fig. 4, left, orange), in which PAR practitioners let them, in simulation, experience a paradigm shift:

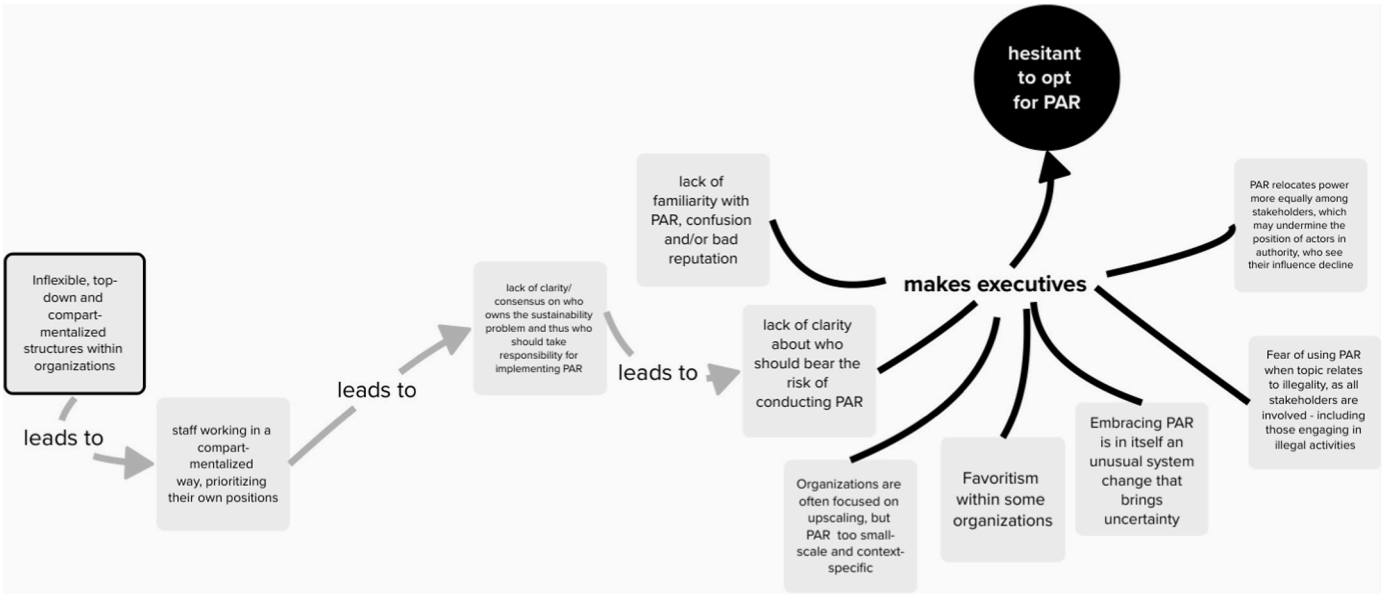


**Fig. 5.** Barriers preventing executives from opting to use PAR to address sustainability issues. The outlined box marks the start of a barrier chain.

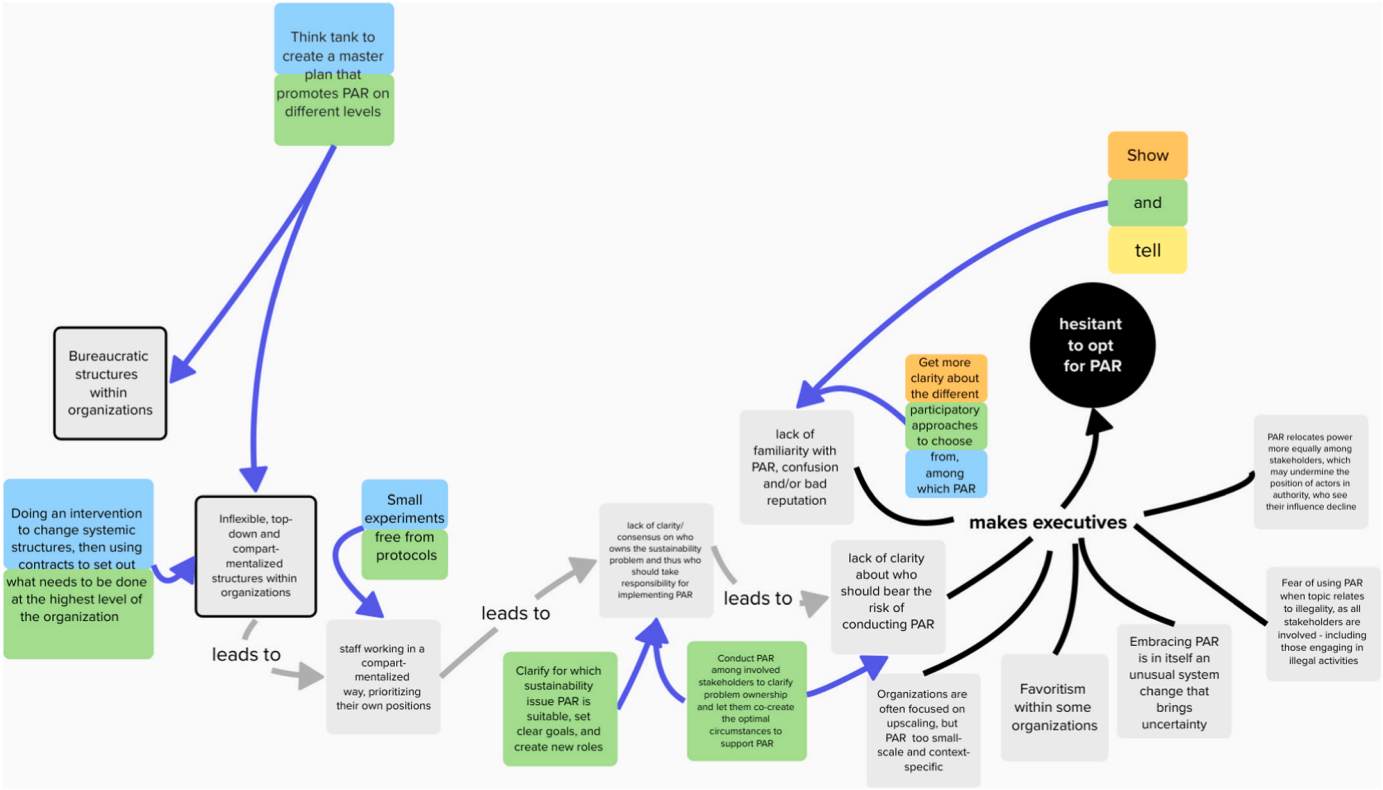


**Fig. 6.** Solutions proposed by interviewees to tackle barriers for executives to opt for PAR to address sustainability issues, represented in green boxes, connected by purple arrows: the Systemic Inspirational Pathway.

steering indirectly instead of directly. This means these funders create the circumstances in which PAR participants, i.e., those experiencing the sustainability problem, co-create and implement solutions together with funders. This experience should convince the funding actors to conduct PAR among themselves or directly fund new PAR projects.

In addition, one interviewee suggested first looking for funding organizations whose primary focus is on igniting participation (Fig. 4, top middle, orange) …

"… Because after all, isn't it more important that participation gets going than what exactly it is that is being participated in? First and foremost, because of the not often mapped costs of non-participation, such as reduced social cohesion, things that cost society a lot of money that could be solved with participation. Funding organizations that focus on participation will probably be more open to PAR."
(Independent professional)

What may also help funders trust that PAR outcomes will be good is

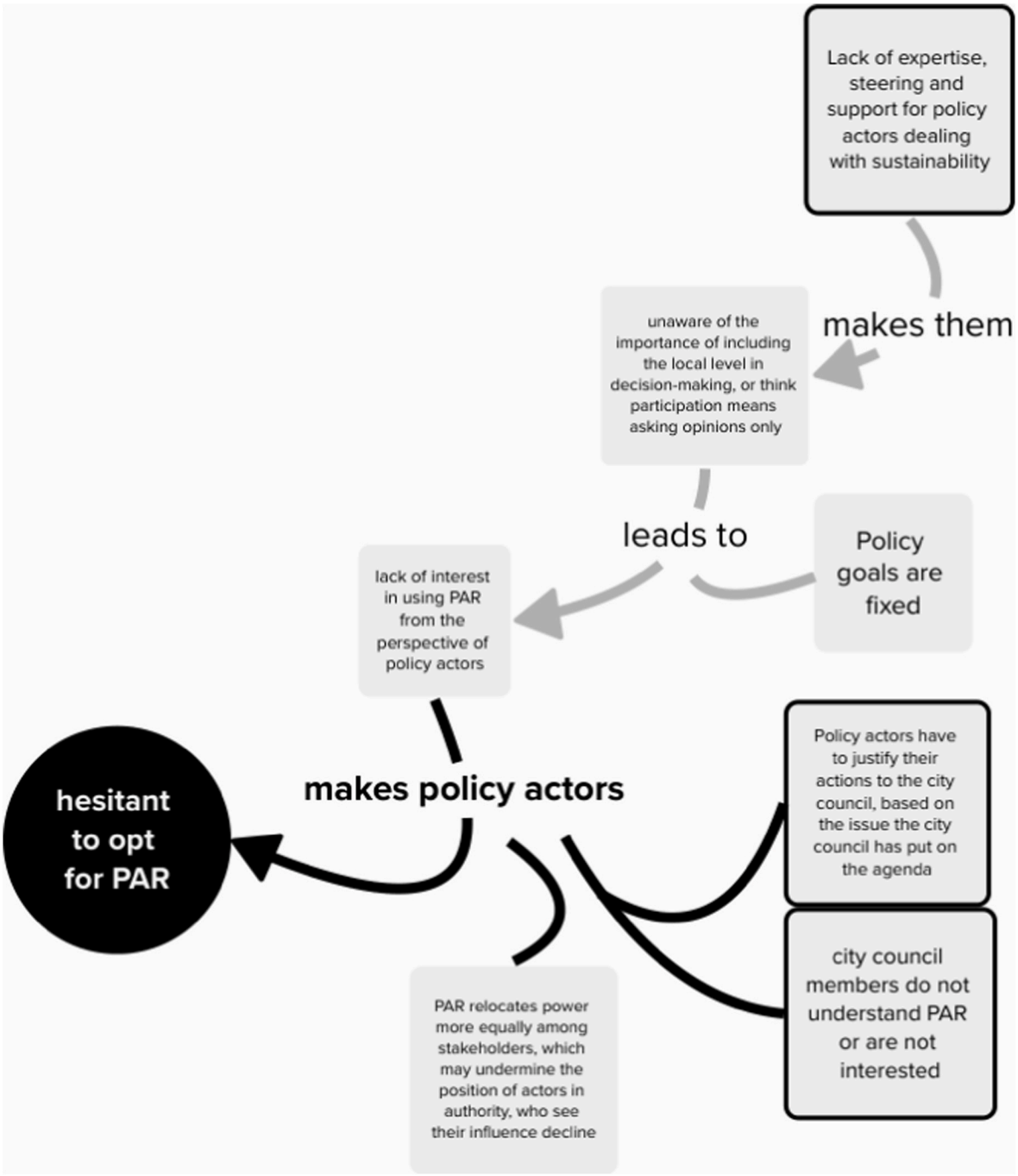


**Fig. 7.** Barriers preventing policy actors from opting to use PAR to address sustainability issues. The outlined boxes mark the start of a barrier chain.

investing in the reputation of PAR practitioners or PAR teams (Fig. 4, middle, third from above, orange), for example through high quality training. In the case of funders still demanding to have much control over a project, one interviewee suggested that practitioners should openly, positively, and constructively tell stakeholders—potential PAR participants—that they are PAR practitioners, to gain their trust and inspire them to participate in PAR (Fig. 4, middle, second from above, orange). This in turn helps funders to gain trust in the PAR practitioner and the PAR process. To address the lack of familiarity barrier, it was suggested to acquire more clarity about the different participatory approaches available, among which PAR (Fig. 4, bottom, orange/green/blue). Finally, interviewees talked about "show and tell": telling funders about past positive PAR outcomes, to gain their trust in the PAR practitioner (Fig. 4, middle, orange/green/yellow). Once sufficient trust has been achieved, PAR practitioners should no longer need time to convince funders and can instead spend that time conducting high-quality PAR. When they do however end up in the position of having to convince funders, finding ambassadors who can advocate for PAR to funders may be helpful (Fig. 4, right, orange/yellow).

### 3.5. *Barriers for executives*

Similar to staff, executives (i.e., actors making decisions) face barriers related to inflexible, top-down and compartmentalized structures (e.g., for funding) within organizations (Fig. 5, outlined box).

Since sustainability as well as PAR methodology involves many domains, compartmentalization results in unclarity—or different views—about who owns the problem and thus who should initiate or take

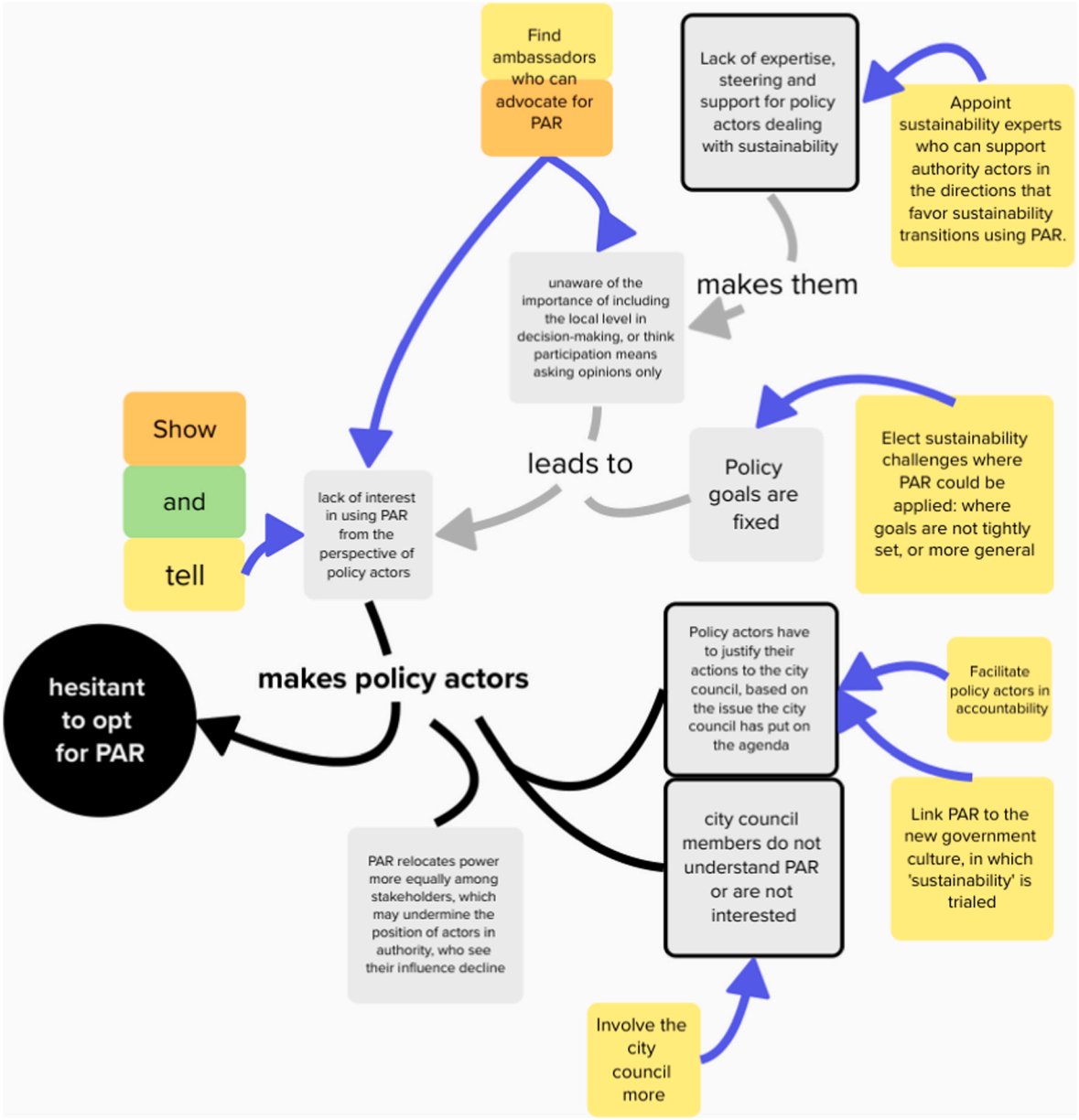


**Fig. 8.** Solutions proposed by interviewees to tackle barriers for policy actors to opt for PAR to address sustainability issues, represented in yellow boxes, connected by purple arrows: the Awareness Pathway.

responsibility for implementing PAR for sustainability issues, and this in turn results in unclarity about who should bear the risks (financial or otherwise) of conducting PAR. An executive stated:

> "[Bridging] that gap between 'it's not about me' to 'it is about me,' […] is also, I think, a challenge. I find particularly in the government sphere […] that people, when it's not in their formal role that they are part of something, why would they participate in some kind of adjacent thing? Because "it's not in my role, so I'm not responsible. So, why should I take the risk?" I see very clearly in business: "but I don't have time for that now, because that doesn't make any money". OK, here I exaggerate. […] But to find involvement and dedication among [colleague executives] to put your neck on the line, to invest without knowing what the upside or win is going to be, or that the risks are controlled, yes, that I find very complex in our world."
>
> (Executive)

This compartmentalization also makes staff wary about different approaches and hence, it is difficult for executives to convince staff to do things differently. Above all, within organizations there is a lack of familiarity with PAR that forms a major barrier to opting for PAR (see also 3.3).

Furthermore, executives face some other direct challenges to implementing PAR (Fig. 4, bottom-right boxes). First, sustainability organizations are often focused on upscaling whereas PAR is too small-scale and context-specific for that. Even though the problem elsewhere may look the same, a new PAR cycle should be started to ensure PAR principles are upheld (such as letting local stakeholders be heard) and to research the specific context and determine the best-fitting solutions. Second, the favoritism within some organizations is not conducive for using PAR, since a basic principle of PAR is that all stakeholders have an equal say regardless of their background, status, or network. Third, interviewees stressed that embracing PAR is in itself already an unusual system change that brings uncertainty, which makes executives who prefer to maintain the status quo hesitant to opt for PAR. Fourth, when the PAR topic relates to illegality, there may be fear about using PAR as it involves all stakeholders, including those engaging in illegal activities.

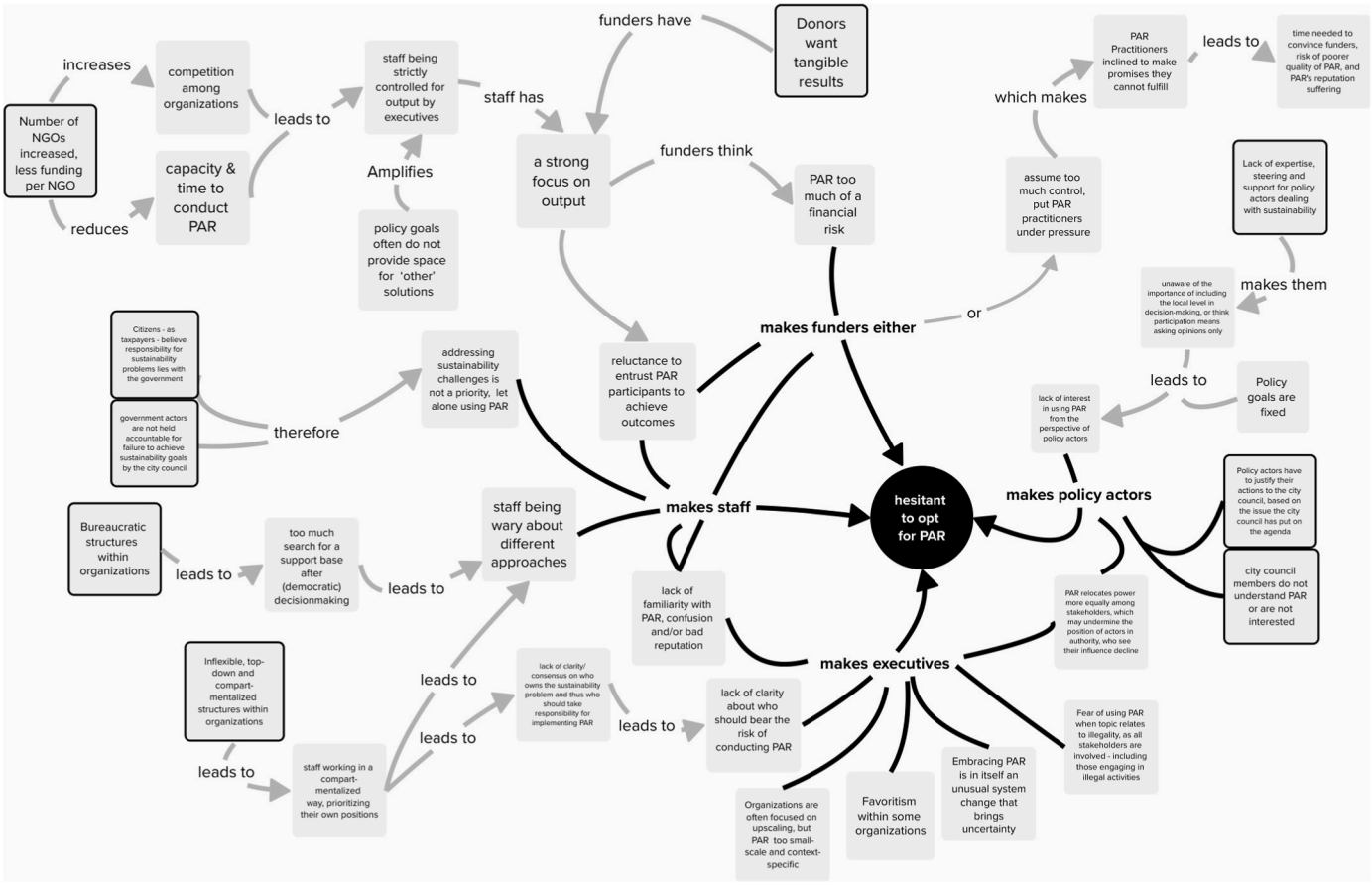


**Fig. 9.** All barriers mentioned by interviewees depicted in causal relations per actor category (staff, funders, executives, and policy actors). The gray boxes outlined in black mark the start of a barrier chain.

Lastly, PAR relocates power more equally among participating stakeholders, which may undermine the position of actors in authority, who see their influence decline.

### 3.6. Solutions regarding executives

Regarding executives, solutions can be organized in the *Systemic Inspirational Pathway* (Fig. 6, green). As the barrier of inflexible, top-down and compartmentalized structures within organizations is the root cause of the reluctance of executives as well as of staff to opt for PAR, the same solutions of intervening to change systemic structures apply here: doing an intervention to change systemic structures, then using contracts to set out what needs to be done at the highest level of the organization and secure their commitments (Fig. 6, bottom left, blue/green).

Also applicable here is the idea of a think tank, where actors with authority develop a master plan to move away from inorganic, fragmented structures, give staff space to move across disciplines in their work (Fig. 6, top left, blue/green). To overcome the barrier of unclarity about problem ownership, it is suggested that:

> "First, it needs to be clear for them [executives] for which sustainability problems this approach is especially suitable."
>
> (Staff member)

A staff member from a different sustainability organization suggested a possible follow-up to that suggestion, "… for consortia working on sustainability, to set clear goals as from there they can appoint ownership to people. […]. As long as all strive for the same vision, it does not matter what you do or what the outcome will be."

(Staff member)

And an executive opined that these strategies could result in new roles being created (Fig. 6, bottom left, green). Another suggestion was to conduct PAR among the involved stakeholders in order to clarify problem ownership and to enable them to co-create the most optimal circumstances to support PAR (Fig. 6, bottom right, green). To address lack of familiarity with PAR (see also 3.3), interviewees suggested to acquire more clarity about the different participatory approaches available, among which PAR (Fig. 6, right, orange/green/blue). 'Show and tell' was often mentioned: sharing successfully completed PAR cases and indicating how participants can benefit from the process can increase understanding of PAR and its value (Fig. 6, top right, orange/green/yellow). No specific solutions were suggested by the interviewees for the barriers mentioned in section 3.5 regarding upscaling, favoritism, system change, illegality, and influence decline.

### 3.7. Barriers for policy actors

According to our interviewees, one major barrier for policy actors (i.e., individuals involved in the development, implementation, or influence of public policy, including elected officials and non-elected policymakers or advisors) is these actors' lack of expertise on sustainability issues and a lack of steering and support to enable them to make well-considered decisions (Fig. 7, top right, outlined box).

For example, policy actors dealing with sustainability issues may not have access to experts to guide them, causing unawareness of the importance of including the local level in decision-making on sustainability issues or, as one interviewee stressed, some policy actors think public participation is just about asking stakeholders opinions, whereas participation in PAR means co-creating policy with them. Both lead to a lack of interest to use PAR to address those sustainability issues.

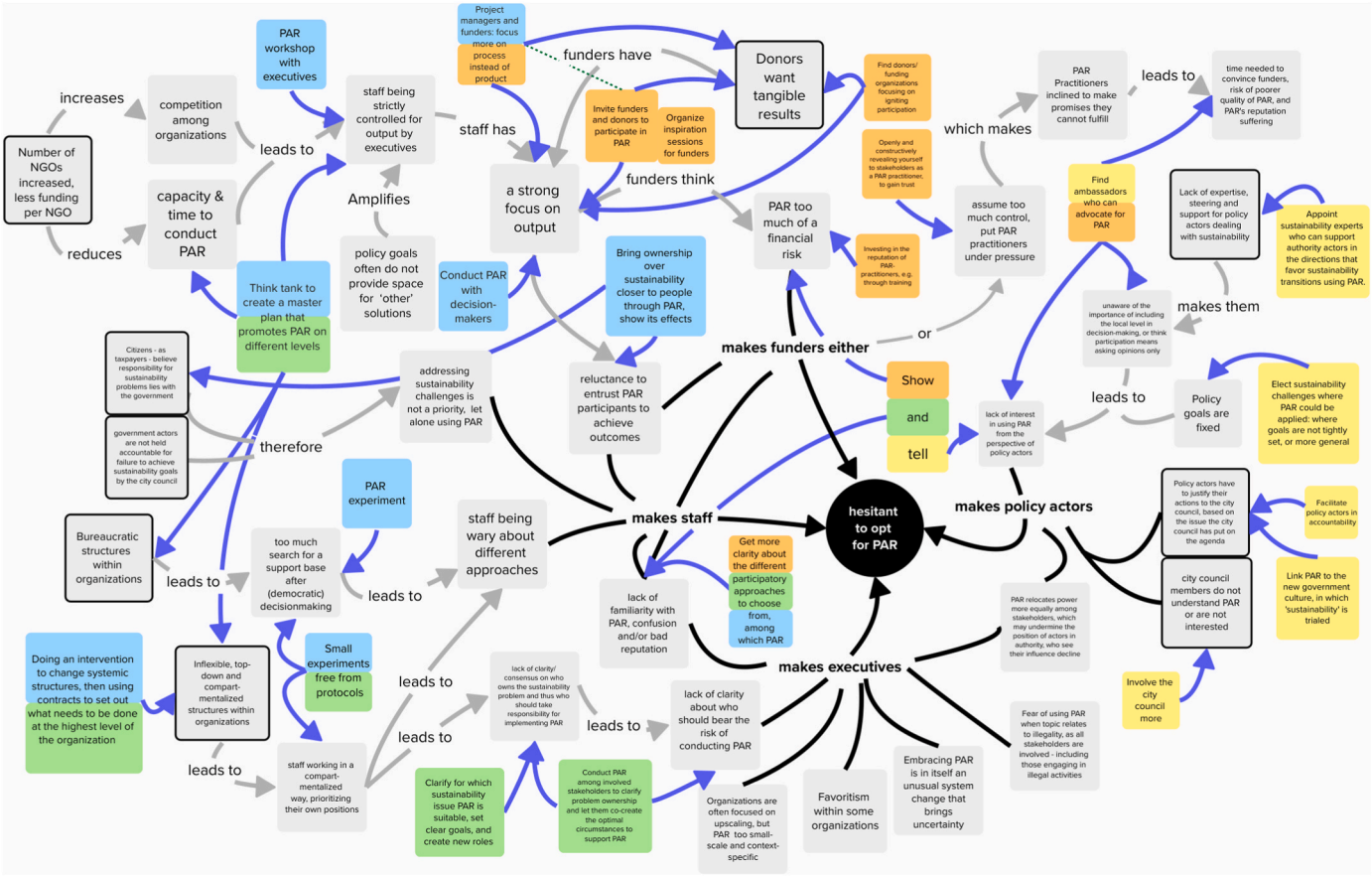


**Fig. 10.** All barriers and solutions mentioned by interviewees. Gray boxes: barriers; outlined gray boxes: start of barrier chain. Colored boxes represent solution pathways: blue = Systemic Autonomy Pathway; orange = Practical Pathway; green = Systemic Inspirational Pathway; yellow = Awareness Pathway. Purple arrows connect solutions to specific barriers.

Moreover, interviewees stated that policy actors work largely toward policy goals that are fixed, which makes PAR unsuitable as an approach to address the sustainability issue. Another major barrier is policy actors having to justify their actions to the city council, based on the issue the city council has put on the agenda. Besides, city council members do not understand PAR or are not interested, as an interviewee explained:

> "So, a city council gets such a plan [e.g. suggesting participatory approaches like PAR] and should read that. But a council member generally doesn't read that. And then […] they don't really understand it at all. It's just too difficult. Or it is not interesting. Is it a faraway story […]. The biggest obstacle is the governance culture we're in."
>
> (Policy actor)

Lastly, as in the case of executives, a barrier policy actors may perceive is the potential for their influence to decline when PAR redistributes power more equally among participating stakeholders.

### 3.8. Solutions regarding policy actors

For policy actors, solutions are structured along the *Awareness Pathway* (Fig. 8, yellow boxes). A solution our interviewees offered for addressing the issue of lack of expertise, steering, and support for policy actors is to appoint sustainability experts who can support policy actors in the directions that favor sustainability transitions using PAR. (Fig. 8, middle right, yellow). When this is not possible or when, despite these actions, policy actors remain unaware of the importance of including local levels in decision-making on sustainability issues, PAR practitioners are advised to find ambassadors to help promote PAR to policy actors (Fig. 8, top middle, orange/yellow).

If all the abovementioned solutions fail to create interest in PAR among policy actors, the interviewees advised applying the earlier mentioned ideas of 'show and tell', i.e., arranging meetings in which PAR practitioners share outcomes of earlier work and talk about integrating PAR. (Fig. 8, left, orange/green/yellow).

The obstacle for policy actors of having to justify themselves and their actions to the city council can be removed by facilitating them in accountability (Fig. 8, yellow, right), i.e. to render account of their actions, e.g., by encouraging an open dialogue between the policy actor and the council about this perceived obstacle, in which the policy actor shows vulnerability. This, however, requires courage. According to one interviewee:

> "… we can help policy actors gain courage for such conversation by saying: 'we know you always have to justify yourself, so it is important to think thoroughly about this process but also that we discuss this with the city council in this manner, before we take off [doing PAR].'"
>
> (Policy actor)

To tackle the barrier of a lack of knowledge about and interest in PAR among city council members it was proposed to 1) link PAR to the new government culture, in which the subject of sustainability is trialed (Fig. 8, yellow, middle) and 2) involve the city council more in this entire process (Fig. 8, yellow, right). A possible solution to remove the barrier of fixed policy goals was put forward by an interviewee working at the Ministry of Economic Affairs and Climate Policy:

"… That you look for the sustainability challenges where [PAR] could be applied. So, where those goals are not so tightly set, maybe, or where those goals are a little more general."

(Policy actor and PAR practitioner) (Fig. 8, yellow, right middle)

Once this initial opportunity for PAR has been created and has demonstrated its potential, new previously unforeseen possibilities may arise.

## 4. Synthesis and overview of all barriers and solutions

From the results presented above we can derive some important insights. First, the complexity of these interconnected, domain-transcending barrier chains (see Fig. 9) may explain the impasse the respondents end up in when attempting to implement participatory approaches such as PAR to sustainability problems. This also means that a barrier can almost never be attributed solely to one type of actor and that tackling a barrier almost always requires cooperation between several types of actors. This may explain why the practice of PAR and PAR-like approaches has been slow to take off despite widespread acknowledgment of the importance of participation in addressing sustainability issues.

Second, acting by implementing one solution will probably affect other solutions or barriers at other levels or for other actors, see Fig. 10.

So, acting on one solution may resolve one or a few barriers and provide some benefits when tackling the next barrier, but there is a risk that the effects might be counteracted by other existing barriers. Therefore, it is worth investigating ways in which different actors could implement different solutions at the same time at different levels within an organization. It is important to realize that actors influence each other through their different roles. Which solution is most effective in a specific context depends on who is applying it where and with whom. Therefore, those wishing to start using PAR for sustainability issues could opt for the pathway, single solution, or set of solutions they feel would have the largest influence, and then closely monitor the resulting interactions with the other solutions.

Third, some solutions intended for a certain actor are also applicable to other actors. For example, encouraging an open conversation between a policy actor and the city council could also be used for executives who have difficulty relinquishing control: these executives could be encouraged to engage in open conversation with other stakeholders on how to feel more comfortable with less influence or to shift their influence to where it does not affect PAR.

## 5. Discussion

In this paper we have investigated how challenges and barriers to the implementation of PAR manifest in sustainability practice and we explored solutions to overcome these barriers and optimize the use of PAR in sustainability efforts. When checking the findings from our interviews against barriers already presented in the literature, we came across a few matches, such as that PAR is still unknown to most people in sustainability organizations; and that there are many approaches for public participation and their classification is unclear (White et al., 2004; Chambers et al., 2021), as well as the financial risk of funding PAR (Home and Rump, 2015). Other matches with the existing literature include the barriers of acquisition of participants for PAR, (Rosenthal and Khalil, 2010), the high amount of time required for conducting PAR (e.g., Groot Kormelinck et al., 2021; Vasseur, 2021) and authority actors' tendency to keep control over projects and processes (Pohl and Hirsch Hadorn, 2008; Rosenthal and Khalil, 2010). Financial barriers for organizations such as the lack of financial support and the mismatch of PAR characteristics and donor wishes have also been reported in the literature (e.g., Risal, 2014) although not specifically linked to PAR or sustainability. The organizational difficulties of using public participation have been highlighted by Risal (2014) and others but without mentioning PAR or sustainability specifically, whereas our interviewees mentioned many governmental and non-governmental barriers within organizations to using PAR to address sustainability issues.

Our research has given some valuable insights into the different ways in which the use of PAR and PAR-like approaches to address sustainability issues can be ignited, but we acknowledge that this is only the first step. We have eight recommendations for further research and action. The first arises because some of our interviewees seemed to be insufficiently familiar with PAR and therefore could not always fully answer our questions. Some were impeded by the barrier of "confusion about the meaning of PAR": for example, one person mentioned as a barrier that outcomes are solely entrusted to the disempowered, whereas in fact PAR allows stakeholders from all rungs of the hierarchical ladder to co-create outcomes that fit the needs of all, not only of the disempowered. For further research we therefore recommend preparing interviewees by giving them a general description of PAR to make sure their reasoning is based on the same information about PAR.

Second, it would be interesting to further research the interactions of given solutions and turn them into more concrete steps of action. In our case, we could have invited our interviewees to a brainstorming session in which we presented the findings of our interviews and jointly designed a concrete action plan. We feel any practitioner should be able to bring actors together and show them how Fig. 2 can help them decide which actions to take.

Third, we have focused on barriers hampering organizations from opting for PAR, yet it would be interesting to research the society side (i.e., what is needed to successfully recruit participants to PAR on sustainability issues). Such research could take as its starting point two statements: "when people are pessimistic of their chances of succeeding, they will be less likely to take part in PAR" (Rosenthal and Khalil, 2010, p. 75) and that "[their] confidence is likely to increase, with the notion that what they have to offer is valued", (Savin-Baden and Wimpenny, 2007, p. 341), which likely motivates them to contribute to addressing sustainability challenges. When organizational actors see what difference PAR participants can make to sustainability issues as well as to their personal development, this may may dispel their reluctance to implement PAR to address sustainability issues from a more holistic angle.

Fourth, interviewing only the actors who are directly immersed in the problem may risk a silo effect. Therefore, future research including outsiders' perspectives would be valuable.

Fifth, this empirical research was focused on practitioners in the Netherlands, yet we feel that the results have broader applicability: our analysis seems to be valuable for PAR in general. Other countries within the EU with highly instutionalized contexts similar to the Dutch context may experience the same barriers and may benefit from implementing solutions mentioned in our paper. Further research is required to determine what can be done in non-Dutch settings.

Sixth, we focused on barriers to using PAR to address sustainability issues, yet our findings may be applicable in other domains as well, such as healthcare and social domains. It would be worthwhile to conduct further research in these domains as well and to design suitable action plans to tackle barriers in those domains.

Seventh, one type of actor not included in our research but that may also be of relevance is the scientist. There may be cases where scientists are pressured to use a certain research method by funding requirements yet feel that that method does not fit or that its resulting recommendations will lead to nothing. Further research into scientists' responsibilities and options for action would be valuable.

Finally, many PAR practitioners do not publish about PAR, so our literature search may not be representative of barriers to PAR use and solutions for avoiding or tackling them. Therefore, we encourage PAR practitioners to publish about PAR, to enrich the literature on barriers and potential solutions.

## 6. Conclusion

The aim of this paper is to provide answers to the questions: 1) *How do barriers to the implementation of PAR manifest in sustainability practice, and 2) what are solutions to overcome these barriers and optimize the use of PAR in sustainability efforts?*

Public participation is already perceived as a struggle to achieve (Chambers et al., 2021; Fischer et al., 2021; Gignac et al., 2022), let alone moving from participation as "thinking together" toward participation as "doing together", the latter being a feature of PAR. Our findings confirm some previously reported findings about barriers to using PAR. Our contribution to the literature concerns 1) new barriers, specifically to using PAR for sustainability, 2) a grouping into barrier chains— indicating how one barrier causes new barriers to arise or maintains or amplifies others, and 3) solutions for tackling those barriers and stimulating the use of PAR to address sustainability issues.

Our interviewees mentioned multiple barriers that organizational actors face in relation to the main barrier of hesitance to opt for PAR to address sustainability problems, as well as a wide variety of solutions to tackle those barriers. We classified these barriers according to the type of actor experiencing the barrier: staff, funding actors, executives, and policy actors. Staff mainly face the consequences of bureaucratic structures within an organization, which results in them being strictly controlled for output and hence hesitant to opt for PAR as its outcomes cannot be predicted beforehand and only become clearer as the PAR progresses. Funding actors face a similar problem: their donors demand tangible results, which cannot be predetermined before the PAR begins. PAR for funders is therefore too much of a financial risk, which makes them unlikely to opt for or fund PAR. Like staff, executives must also deal with the bureaucratic structures that make it unclear who owns the problem and thus who should bear the risk (financial or otherwise) of PAR. Given their lack of familiarity with PAR combined with their confusion about its meaning, it is not surprising that executives do not opt for PAR. For policy actors, the major barriers are fixed policy goals, their lack of expertise on sustainability issues and the lack of support available and the requirement to justify themselves to the city council. This makes them hesitant to opt for something as indeterminate as PAR; the complexity of these interconnected, domain-transcending barrier chains may explain the impasse these actors are in.

To optimize the use of PAR in governance aimed at sustainability issues in the Netherlands, pathways of several combined solutions could be implemented by the corresponding stakeholders or other stakeholders in favor of PAR. For staff, the *Systemic Autonomy Pathway* (Fig. 10, blue) takes away the barriers they perceive to using PAR for sustainability issues, by intervening in the bureaucratic structures of an organization (Systemic) and in the control barrier resulting from those structures (Autonomy). For funding actors, the *Practical Pathway* (Fig. 10, orange) focuses on moving from product to process and executing PAR itself to remove barriers relating to funding actors' distrust of PAR. For executives, the *Systemic Inspirational Pathway* (Fig. 10, green) starts, similarly to the Systemic Autonomy Pathway, by intervening at the higher organizational levels to tackle the bureaucratic structure barriers. It takes a different turn from the Systemic Autonomy Pathway to deal with the barrier of unclarity about and unfamiliarity with PAR (see Fig. 10), by offering solutions that are more focused on inspiring executives through 'show and tell' and engaging ambassadors (Inspirational). For policy actors, the *Awareness Pathway* (Fig. 10, yellow) is focused on increasing their awareness about the importance of including the local level in decision-making and action. Applying these solution pathways should contribute to tackling the barriers as experienced by each type of actor and be mutually reinforcing, especially if it inspires actors to collaborate in lowering the threshold for using PAR to address sustainability issues.

The first steps toward stimulating the use of PAR can be taken by anyone who feels able to apply one or more solutions. Increased use of PAR would in turn mean responding to the growing interest in public participation in research as well as in governance to combat complex sustainability problems. Based on our findings we feel that this could mean a major step forward in the pursuit of a more participatory and sustainable world.

## CRediT authorship contribution statement

**Madelon Eelderink:** Writing – review & editing, Writing – original draft. **Tara Smeenk:** Writing – original draft. **Peter Driessen:** Writing – review & editing. **Frank van Laerhoven:** Writing – review & editing. **Joost Vervoort:** Writing – review & editing.

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## Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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## Data availability

Data will be made available on request.

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