Article

Finding Common Climate Action Among Contested Worldviews: Stakeholder-Informed Approaches in Austria

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Abstract

Our goal was to identify and understand perspectives of different stakeholders in the field of climate policy and test a process of co-creative policy development to support the implementation of climate protection measures. As the severity of climate change grows globally, perceptions of climate science and climate-based policy have become increasingly polarized. The one-solution consensus or compromise that has encapsulated environmental policymaking has proven insufficient or unable to address accurately or efficiently the climate issue. Because climate change is often described as a wicked problem (multiple causes, widespread impacts, uncertain outcomes, and an array of potential solutions), a clumsy solution that incorporates ideas and actions representative of varied and divergent worldviews is best suited to address it. This study used the Theory of Plural Rationality, which uses a two-dimensional spectrum to identify four interdependent worldviews as well as a fifth autonomous perspective to define the differing perspectives in the field of climate policy in Austria. Stakeholder inputs regarding general worldviews, climate change, and climate policy were evaluated to identify agreeable actions representative of the multiple perspectives. Thus, we developed and tested a co-creative process for developing clumsy solutions. This study concludes that while an ideological consensus is unlikely, agreement is more likely to occur on the practical level of concrete actions (albeit perhaps for different reasons). Findings suggested that creating an ecological tax reform was an acceptable policy action to diverse stakeholders. Furthermore, the study illuminated that the government is perceived to have the most potential influence on climate protection policy and acts as a key "broker", or linkage, between other approaches that are perceived to be more actualized but less impactful.

Keywords: climate change; climate policy; clumsy solutions; cultural theory; ecosystem and complexity research; participatory impact analysis; resilience; theory of plural rationality; wicked problems

1. Introduction

1.1. Urgency of a Global Problem

The need for a clear path to deal effectively with the global climate crisis has been highlighted by recent disruptions in both the meteorological and political arena. Human-

caused climate change is contributing to changes in weather extremes and is estimated to persist under the IPCC's prediction scenarios [1]. At the same time, calls for policy to address climate protection have become more polarized and fragmented. In certain countries and regions and among specific social groups, there is a growing awareness of the need for action, as evidenced by social movements, such as Fridays for Future, Extinction Rebellion, and the September 2019 climate strikes [2,3]. On the other hand, political viewpoints that doubt the importance of international cooperation for climate policy persist with strong support of certain segments of society.

While studies demonstrate a level of relative acceptance of the existence of climate change amongst lay public along with overwhelming agreement by climate science and adjacent experts [4], competing perspectives on the methods to address it can prevent conflict resolution and complicate political decision making such that the pace of political action cannot keep up with the urgency of the problem [5]. Amongst Western countries, acceptance of the scientific climate change consensus has been stable since the 2010s with the majority of sampled individuals indicating agreement [6,7]. Using the U.S. as an example, despite majority public support for international action to tackle climate change, increased polarization in American policymaking has led to diametrically opposed actions such as pulling out of the Paris Agreement while simultaneously increasing exports of fossil fuels [6,8]. Geographic disparities in the pervasiveness and rationale for climate dissent are driven by a variety of factors, such as education, awareness, and risk perception [9–11]. The complex interactions of these factors result in vastly differing conditions leading to similar convictions of dissent, such as those identified in India compared to the U.S. [5,10]. The scientific consensus on climate change as well as clear emissions targets have been long-established, yet suffusive climate dissent remains a barrier to meaningful action.

Despite significant headway by the European Union in their efforts to avert the damaging effects of anthropogenic climate change, the continent is still threatened by a variety of extreme weather-based events (e.g., heat waves, excess precipitation, sea-level rise) [12–15]. For example, Storm Boris recently impacted Central Europe in September 2024 resulting in an estimated EUR 4.2 billion in damages and 27 fatalities. Austria, in addition to suffering from Boris, is particularly sensitive to climate change due to its reliance on the service sector and, with that, its tourism industry [16,17]. Average temperatures in Austria have already risen by 1.8 °C since the late 19th century, exceeding the global average and further threatening some of Austria's vital ecosystem services (e.g., snowfall accumulation) [18,19].

The Theory of Plural Rationality (TPR) has been operationalized in climate change studies in regions such as the U.S., the U.K., and Australia to correlate perceptions of climate-change with adherence to both party-affiliation and to prescribed worldviews identified in TPR [4,20–23]. Brechin and Bhandari [24] and Lee et al. [25] broaden the scope of the literature in climate change perspectives by analyzing them on a global scale. A recent paper by Bretter and Schulz [26] focused on TPR's diverging worldviews as a basis for supporting different policies. While that is an important insight, we seek to find a common approach across the various perspectives by co-creating a process for implementing an agreeable concrete action. Despite these previous efforts, the continued regional bias in the available data means an effort must be made to create links between the previous studies and other regional cases. This research contributes to filling the gap by looking at the specific case of climate actions in Austria.

1.2. A Process for Climate Protection Implementation

Our research was developed against this background beginning in 2017. Herein, we describe five different perspectives towards climate protection policy in Austria and

developed a process to incorporate these perspectives into a co-creative climate policy-making process. The approach uses Social Network Analysis and Participatory Impact Analysis framed by an adaptation of Theory of Plural Rationality or Grid–Group Cultural Theory (developed by anthropologist Michael Thompson and others [27,28]) set in the social context of the climate debate

Starting with a Referential Social Network Analysis (SNA), we identified and defined the landscape of climate change stakeholders in Austria, including institutions across political, economic, research, and civil society (institution types). We then looked for a correlation between institution type and network position and connectedness between institution types to identify their brokerage roles. We also wanted to obtain an understanding of these stakeholders' attitudes towards different climate protection measures, so we asked participants in the SNA to rate both the impact of climate protection approaches and how those approaches could garner more support.

The second part of our research, the Participatory Impact Analysis (PIA), included five workshop sessions with participants representing the institutions involved in the SNA. Through the processes of Statement Mapping and Leverage Point Mapping, they provided feedback on statements about climate policy and general values and worked together to develop success factors for implementing climate protection measures. The statement and leverage point mapping allowed us to identify what climate protection measures are most preferred, are perceived to be most impactful, and how to generate support most effectively for these actions. Figure 1 summarizes our process.


		Procedures	Outcomes
Referential Social Network Analysis *Methods: 2.1* *Results: 3.2-3.3* Step		- Rate specific policy approaches on a scale from 0 to 10 - Identify representatives for selected policy approaches - Proposing improvements to policy	- Identify relevant stakeholders (experts) in the climate policy field - Map stakeholder positions within the network - Analyze perceived impacts of the four climate protection strategies - Identify "brokerage" roles of institution types
Participatory Impact Analysis: Statement Mapping *Methods: 2.1-2.2.1* *Results: 3.3.1* Step 2		- Assess agreement with statements on values, climate policy, and concrete measures (see Appendix) - Evaluate likelihood of implementation	- Determination of perspectives in the plural rationality space - Develop a "Dissent Index" measuring approval or rejection of a statement across all stakeholders
Participatory Impact Analysis: Leverage Point Mapping *Methods: 2.1-2.2.2* *Results: 3.3.2* Step 3		- Identifying causal factors for policy successes - Assess the causal relationships between factors	- Identify active and passive factors - Determine the role each factor plays in the policy making process: starting points, critical factors, performance indicators, and context

Figure 1. Methods and outcomes for developing a process for co-creative climate policy development. Each step indicates where that section is found in the paper.

This process involved the intentional identification and involvement of institutions with disparate perspectives on climate change as defined by TPR and allowed us to identify common ground among the groups as well as a role for each in the implementation of climate protection measures. Below, we discuss how clumsy solutions, the inclusion of all perspectives on the climate change issue and climate protection policy and action, can evolve from a process using TPR and may be necessary when dealing with wicked problems like climate change.
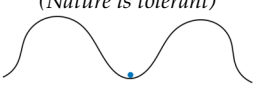
1.3. Theory of Plural Rationality (TPR)

TPR is simultaneously a heuristic model and an institutional theory to describe different patterns of social organization while postulating a cultural space with two dimensions—grid and group [27] (Figure 2). The grid dimension refers to the extent to which social actors find themselves in asymmetric, hierarchical social relations [27]. The group dimension refers to the amount of social cohesion among the social actors involved [27]. The combination of the two dimensions leads to at least four types of social perception, with a fifth type positioned beyond the grid–group cultural space. The perspectives of social actors differ depending on the position in the cultural space (Figure 2), and these social actors may find themselves in a different position in the social space depending on the context or situation.
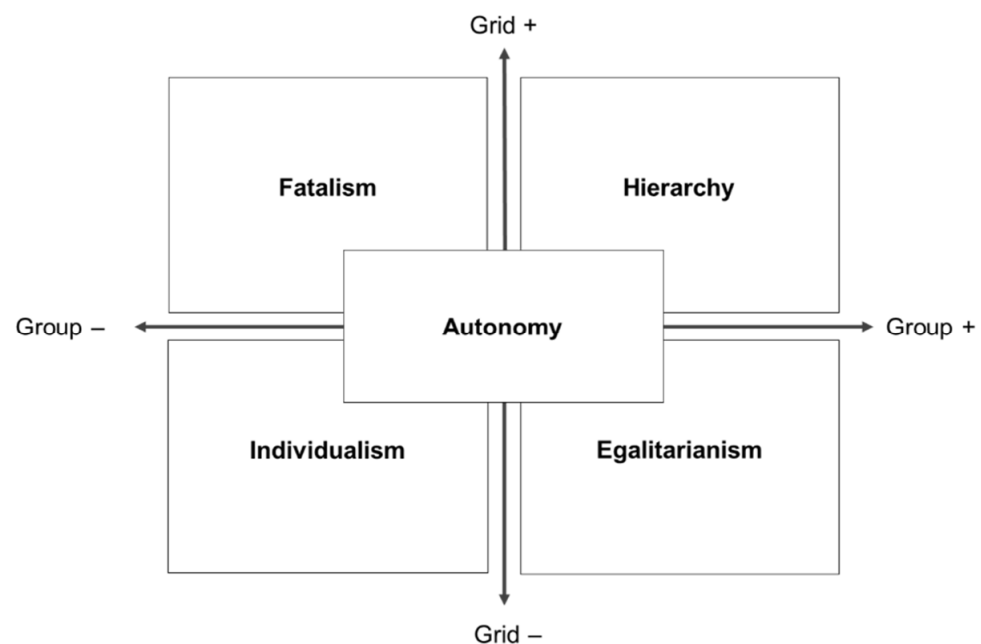
Figure 2. The Plural Rationality Model [13]. Four quadrants plus center capture the oppositional worldviews, particularly as it comes to questions of environmental risk and climate change response (see Table 1 for more detail).

TPR treats each of these perspectives as depending on and influencing one another. Keeping this in mind could be a key to a better understanding of the positions and to new formats of problem framing and decision making. Because each perspective is shaped by and complementary to the others, dealing with a problem that excludes anyone would not be a complete solution.

Table 1. Plural Rationality perspectives and our interpretation of each in the context of climate change. A common metaphor for the rationalities is to consider a ball-and-cup stability diagram, and how resilient each one is to disturbing nature.

Rationalities [13]	Plural Rationality Perspective	Perspectives Applied to Climate Change	Examples of Preferred Climate Policies
Hierarchism *(Nature is tolerant)* *High group–High grid* Strong hierarchies; high-group embeddedness; limits; protocol; integrity; trust	Social life is controllable and stable as long as rules are followed. Social institutions are essential to ensure the fair distribution of resources in accordance with needs defined by experts.	*Etatistic perspective* Reliance on climate experts, governmental policy; international treaties	– Global average temperatures as reference values – Carbon offsetting – Ecological taxation – State and public subsidies – Research funding
Individualism *(Nature is benign)* *Low group–low grid* Weak hierarchies; low-group embeddedness; hearty; stout; insouciance; utility; privacy	Social life is the product of actions of individuals who pursue personal goals. Resources are distributed through markets. Everyone has equal beginnings, and competence and performance count.	*Individualistic perspective* Reliance on market; market-based solutions; new technologies for climate protection	– E-mobility – Renewable energy technologies – Sustainable industrial processes
Egalitarianism *(Nature is ephemeral)* *High group–low grid* Weak hierarchies; strong group embeddedness; fragility; protectiveness; cautious; restraint	Equality between social actors is the greatest good. Justice is not created by markets or bureaucracies. A sense of responsibility and commitment towards the socially weak and disadvantaged.	*Egalitarian perspective* Reliance on individual responsibility; lifestyle changes	– Saving energy – Reducing meat consumption – Avoiding car and air travel
Fatalism *(Nature is capricious)* *Low group–high grid* Strong hierarchies; low cohesion; luck; chance; status quo	Social life is ruled by chance, therefore it cannot be changed or influenced in any meaningful way. There is no trust and justice.	*Skeptical perspective* Distrust of ruling elite; media; "established" forms of knowledge; climate action will not matter	– Denies the necessity and/or possibility of climate protection measures at all
Hermitism *(Nature is resilient)* *Unbound from group/grid constraints* Withdrawn; separated; transcends CT-types	Lays outside the standard group–grid landscape and can therefore take parts from all.	*Autonomistic perspective* Theoretically champions decentralized/local self-organization as principle, open to radical systemic transformation.	– Local autonomy as a core principle – Radical systemic transformations

1.4. Climate Change as a Wicked Problem and TPR in Policy Co-Creation

Wicked problems are technologically as well as socially complex, driven by many interconnected forces, involve many stakeholders with different perspectives and interests, and lack consensus on the nature of the problem and the nature of suitable actions. A single "one-size-fits-all-solution" does not exist, and there is much dissent about which, if any, measures should be implemented [29]. All of these characteristics are true of the problem of climate change. Wicked problems also require more specific and complex formats of discussion, conflict resolution, and decision making than simpler problems with one root and a simple solution. Thus, it is first necessary to determine and describe the various

perspectives towards climate policy which exist in the climate debate. TPR enables us to understand why these different perspectives exist and how they depend on each other.

TPR calls for "clumsy solutions," which Verweij et al. [30] describes as "policies that creatively combine all opposing perspectives on what the problems are and how they should be resolved" (p. 817). Deliberative democracy is a methodology used to identify these types of poly-rational approaches through debate and deliberation amongst groups of individuals, prioritizing "everyday talk" anecdotes, experiences, feelings over "...command, deception, coercion, or private expressions that cannot reach others." [31] (p. 8). When TPR is applied to this methodology, the environment where participants interact and discuss can be curated such that all perspectives are "present, ensuring policy outcomes have limited cultural blind-spots" [32]. Defining TPR perspectives in the context of climate change (below) allowed us to ensure that all perspectives were included in the co-creative process employed in the Participatory Impact Analysis of this study and to invite clumsiness into policy development.

1.5. Defining TPR Perspectives in the Context of Climate Change

To apply the Theory of Plural Rationality to the concrete domain of climate policy, we operationalized its two abstract dimensions. The "grid" dimension, representing hierarchical prescription, is translated into a scale of governance, ranging from centralized (high-grid) to decentralized (low-grid) policy structures. The "group" dimension, representing social cohesion, is translated into mode of coordination, ranging from prescribed/collective action (high-group) to voluntary/individual action (low-group). This operational framework, shown in Figure 3, allows us to map distinct climate policy and action preferences that correlate with each of the perspectives, as others have done [33,34]. This leads us to perspectives in the climate debate that are described in Table 1.
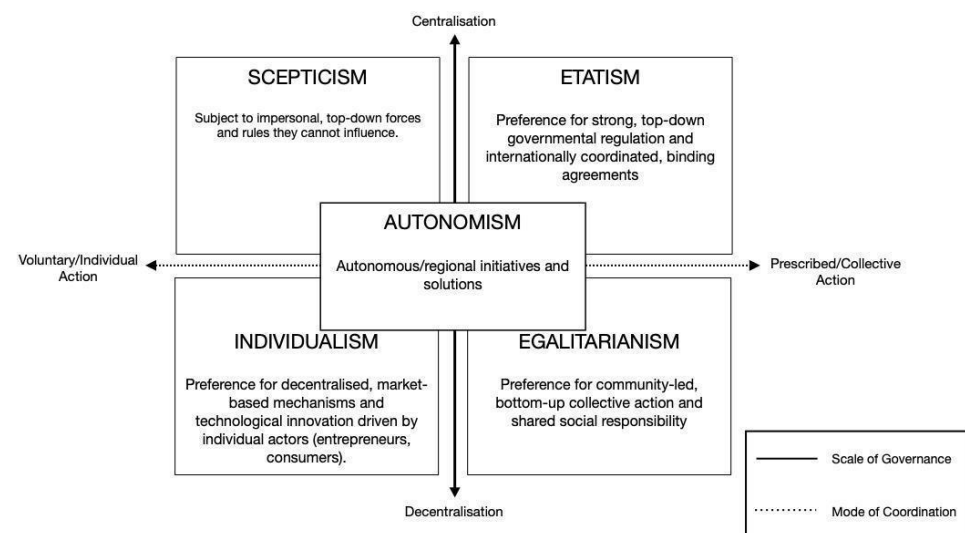
Figure 3. Interpretation of social perspectives defined by Grid–Group Cultural Theory within the field of climate policy. We have interpreted the *Y*-axis as the "Scale of Governance" with a preference for "Centralization" as high-grid and "Decentralization" as low-grid, and the *X*-axis as the "Mode of Coordination" with "Voluntary/Individual Action" as low-group and "Prescribed/Collective Action" as high-group. Chart: FASresearch based on [27].

The etatistic perspective is positioned on the upper-right quadrant of the grid–group space, representing adherence to centralized policy structures to influence collective action, and it champions solutions that are designed and enforced by a central authority for the collective good. The sceptic is located on the upper-left quadrant of the grid–group space and represents the experience of atomized individuals subject to impersonal, top-down

forces and rules they cannot influence. This leads to a skeptical or fatalistic view that neither individual agency nor collective solidarity can meaningfully address the climate problem, making any action seem futile or arbitrary. The egalitarian perspective represents the belief that solutions emerge from community-led, bottom-up collective action and shared social responsibility. It emphasizes lifestyle changes, social movements, and local solidarity for climate protection over state or market control. The individualist perspective represents the belief that solutions come from decentralized, market-based mechanisms and technological innovation driven by individual actors (entrepreneurs, consumers). It relies on competition, personal freedom, and market signals to drive innovation for climate protection measures.

The fifth perspective, the Autonomist or Hermit, is positioned outside the primary grid–group space. This rationality is not defined by a specific organizational structure but by a principled withdrawal from the constraints of the other four. In the context of climate policy, this voice does not represent "local initiatives" per se—which can themselves be egalitarian, hierarchical, or individualistic—but rather champions the principle of autonomous, decentralized, and often local-scale solutions. It finds value in a portfolio of bottom-up approaches and is open to radical transformations that challenge the assumptions of the mainstream political and economic system."

It has been established that individuals are less likely to be receptive to storylines, narratives, or information that do not conform with their values [35,36]. Our aim is to understand the group perspective and find storylines that engage the climate action rather than the values driving the action. This upholds the internal consistency of specific group values such that the individuals affiliated with that group are more likely to be receptive to it [37].

TPR proposes that all perspectives are defined by the others, and therefore, none of them will ever disappear from the climate pentalogue. Following this proposition, dealing with climate change cannot be centered on convincing a person to give up a certain position. Following this, mutual acceptance of many climate policy options from diverse perspectives will have more impact than consensus building and compromise formation. Additionally, including the role of the hermit, which has been regarded as a theoretical integration of the other four perspectives [27], calls attention to and provides space for autonomous and/or radical modes of climate action that may not come from the other four perspectives. A summary of the five perspectives defined by TPR, how we have interpreted these positions in the field of climate change policy implementation, and examples of the preferred climate protection measures is presented in Table 1.

2. Approach and Methodology

After framing the development of climate protection policy in terms of TPR, we applied this to our study in Austria: *The Roadmap for the Implementation of the Paris Agreement*, or RIPA. To describe the stakeholder network of the Austrian climate policy field, determine the different perspectives towards climate change and climate protection measures, and identify the key factors for the successful implementation of climate protection measures, we conducted a Referential Social Network Analysis based on snowball sampling techniques [38,39]. Then, we ran several Participatory Impact Workshops to guide participants who represented the different rationalities and perspectives through a co-creative process to identify potential climate protection measures. (Refer to Figure 1 for a summary of our process.)

2.1. Social Network Analysis and Assessment of Climate Protection Measures

Referential Social Network Analysis was utilized in this research due to its ability to identify key actors, both apparent and hidden, within the Austrian climate policy arena.

This method uses an initial set of stakeholders identified through extensive preliminary background research, to subsequently identify additional actors in the arena. This is also known as snowball sampling. The advantages of Referential Social Network Analysis over other methodologies are (1) its ability to naturally highlight diverse interconnected networks of influential individuals/organizations; (2) its ease of implementation due to it its use of focused sample populations over potentially less relevant representative populations; (3) its credibility owing to the sampled communities ability to validate the level of influence owed to each nomination; and (4) its ability to promote communication amongst stakeholders within the network [40].

Interviews were conducted by asking interviewees to carry out the following:

(1)   assess the impact of the four different climate protection approaches on a scale from 0 to 10.
(2)   nominate people and/or organizations/companies who/which represent these approaches.
(3)   recommend how these measures, projects, and initiatives could obtain more support.

This study includes 134 interviews with experts from different climate policy fields (politics and administration, economy, science and research, and civil society) selected by snowball sampling that were conducted via phone call [38]. Of the 134 interviews, 13 semi-structured in-depth interviews (lasting from 45 min to one hour) were conducted amongst the various members of each rationality perspective in order to reinforce the data being gathered through both the network analysis and workshops. These interviews were recorded, transcribed, and then qualitatively analyzed using thematic analysis to be referenced throughout the remainder of our research. (See Appendix C for more information about these 13 interviews.)

Relatively few studies have attempted to operationalize and determine the perspective of social actors in the Plural Rationality space using a questionnaire, especially in the field of climate policy [41]. This may be because perspectives are not pure and homogenous as they depend on context and the specific issue at hand. To more concretely anchor our study in the context of climate change, we included statements on specific climate protection measures and solutions in our survey to determine their perspective in the plural rationality space, as it is applied to climate change, instead of using abstract descriptions of these perspectives generally. The climate protection measures of each rationality perspective were framed as follows:

(1)   **Etatistic Perspective**: funding instruments, legal framework, ecological tax reform; targets for automotive manufacturers regarding emissions, energy taxation, funding for renewable energy and e-mobility, speed limits, green finance instruments, etc. interpreted as **Governmental Approach**.
(2)   **Individualistic Perspective**: e-mobility, alternative fuels, renewable energies, sustainable industrial processes, and similar, interpreted as **Market/Technological Approach**.
(3)   **Egalitarian Perspective**: consumption of regional and organically grown food, waiver of meat and of air travel, restriction of plastic consumption, consequent waste separation, and so on, interpreted as **Lifestyle Change**.
(4)   **Autonomous Perspective**: supportive of local actions that may appear to align with other perspectives, but outside of the constraints of the other perspectives, such as climate alliances, green building measures, and spatial planning at the community level, interpreted as **Regional Approach**.
(5)   **Fatalistic Perspective**: absent (see below).

It was almost impossible to find representatives of the "fatalistic" perspective ("climate skeptics" or deniers of human-made climate change) who agreed to take part in interviews or workshops. Therefore, these stakeholders are not depicted in the social network, an issue that many researchers found in conducting climate change policy studies using TPR [42].

2.2. Participatory Impact Analysis

In order to identify specific policy options covering a breadth of perspectives, we employed a Participatory Impact Analysis (PIA), a specific workshop format that uses concepts of complexity research [43], ecosystem research (e.g., adaptive co-management [44]), operations research, and robust decision making [45], for stakeholders of the climate policy field. For the RIPA project, we conducted five workshops, one for each perspective (excluding the "fatalistic" position) and one with representatives of each perspective. There were 26 participants altogether, and each workshop lasted for about five to six hours. The PIA workshops consisted of two modules which we called "statement mapping" and "leverage point mapping". These workshops were conducted by two FASreserach members. Each participant utilized either a laptop or smartphone to log their answers for the two modules. We used software developed by FASresearch to log and process stakeholder responses, resulting in real-time visualization of the data.

2.2.1. Statement Mapping: Stakeholder Agreement and Perceived Feasibility

The statement mapping module was designed to determine the participants' positions in the Plural Rationality space. Therefore, we asked them to assess statements that represented the different rationalities (governmental approach, market/technological approach, lifestyle change, and the regional approach) on three dimensions with increasing concreteness: (1) basic social values and attitudes, (2) basic approaches to climate policy, and (3) concrete climate protection measures (see Appendix A for a complete list). The participants were asked (1) to indicate how much they agree with a statement (e.g., to which extent they support a certain climate protection measure like an ecological tax reform), and (2) if they regard the probability for the implementation of the measure along a continuum from low to high. The combination of these two variables leads to a scatter diagram in which these statements/measures are positioned according to their agreement value and implementation probability. In each workshop, the measure with the perceived highest support and the lowest implementation probability was chosen for the second module, the leverage point mapping.

2.2.2. Leverage Point Mapping: Success Factors and Causal Relationships

The objectives of the second part of the Participatory Impact Analysis, the Leverage Point Mapping, were (1) the co-creative development of the success factors for implementing a policy and (2) to define the causal relationships between these factors in order to describe the role each factor plays in the process of implementing the policy. The leverage point mapping, similar to sensitivity analysis [43], sets a goal (in our case: the implementation of the climate protection measure identified in the statement mapping before), and then the participants are asked to develop success factors important for achieving the goal. After that, the participants estimate the causal effect each factor has on every other factor. This leads to a classification of factors with respect to the specific role they play in the complex process of achieving the goal (to implement the climate protection measure) as well as to a network of success factors that are connected through the estimated causal relations. Based on this information, a plan ("roadmap") for the implementation process to achieve the goal can be developed. Depending on the position within the system, either acting as a cause or an effect, a factor may be more or less relevant and, more importantly, more or less suitable to influence the process and, therefore, act as the "leverage point."

3. Results and Discussion

3.1. Defining the Austrian Climate Policy Network

The Austrian climate policy network derived from the Referential Social Network Analysis (134 interviews with experts identified through snowball sampling) consists of 549 institutions (which fall into the categories of Politics and Administration, Economy, Research and Science, or Civil Society) connected through 1077 nomination relations. An average of 9.2 institutions were named in each interview. Figure 4a depicts the entire stakeholder network, and Figure 4b depicts the core of the network.

(**a**)

(**b**)

Figure 4. (**a**): Results of the Austrian climate policy stakeholder network. Chart: FASresearch. (**b**): The core of the Austrian climate policy stakeholder network. Chart: FASresearch.

Institutions were grouped together by type and represented by circles of different colors, as follows: politics and administration (also government, orange), economic (blue), research and science (grey), and civil society (yellow). Numbers indicate ranks according to the number of nominations (in degree). The network consists of one densely connected core and a wide-ranged, diversified (semi)periphery. This suggests the existence of a single climate protection community but does not reveal any existing tensions between the different stakeholder perspectives. The network analysis led to a list of key institutions sorted by the number of nominations and network centrality (brokerage [betweenness] and closure [the extent to which institutions are embedded in triadic relationships] [46]).

There is a clear correlation between network position and type of institution (Table 2). By subdividing the network into core (five nominations and more), semi-periphery (two up to four nominations), and periphery (less than two nominations), we can locate governmental institutions (federal and regional ministries, political parties, municipalities) mainly in the core of the network. Government represents 27.5% of all organizations in the network core, while in the semi-periphery and the periphery, this number is just 21.9% and 16%, respectively. The percentage of economic institutions on the other hand increases from the center to the periphery (40%, 45.3%, and 51.4%). We find research and science mostly in the semi-periphery (15% in the core, 19.5% in the semi-periphery, 15.7% in the periphery), and it is remarkable that the civil society organizations are located in the core (big NGOs) as well as in the periphery (regional climate protection associations and initiatives—the percentages are 17.5%, 13.3%, and 16.8%).

Table 2. Distribution of stakeholder groups over network areas by number of institutions in each position and percent of totals. Table: FASresearch.

Network Position	Government	Economy	Research and Science	Civil Society	Total
	Number of positions				
Core	11	16	6	7	40
Semi-periphery	28	58	25	17	128
Periphery	61	196	60	64	381
Total	100	270	91	88	549
	Percentage of institutions				
Core	27.5	40.0	15.0	17.5	100
Semi-periphery	21.9	45.3	19.5	13.3	100
Periphery	16.0	51.4	15.7	16.8	100
Total	18.2	49.2	16.6	16.0	100

Another indicator for the specific position of governmental institutions within the network is the number of brokerage roles (Figure 5). Brokerage in this sense is a genuine network analytical concept, which measures the degree to which a specific network actor connects different kinds of other actors (i.e., is in a brokerage position; [47]). For example, if an interviewee of a company nominates someone in a ministry, and this ministry is also connected to an NGO, the ministry is in a so-called liaison brokerage position (government brokers between economy and civil society). Figure 5 exhibits the aggregated number of all brokerage positions per link for the four institutional sectors. We can see that it is mainly the governmental organizations that act as brokers in the network.
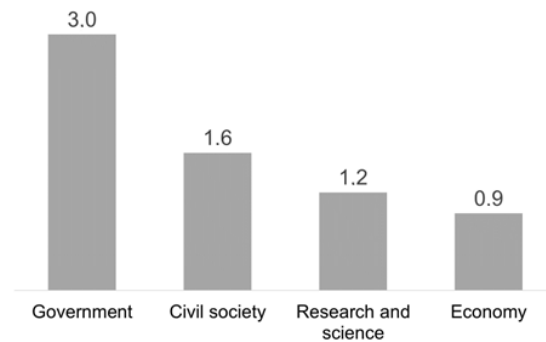
Figure 5. Average number of brokerage roles per link and stakeholder group. Chart: FASresearch.

3.2. Policy Preferences, Impact Perception, and Relationship to Network Position

The interviewees were asked to estimate the impact of the different climate protection approaches on a scale from 0 ("no impact") to 10 ("enormous impact"). All 134 respondents answered this question, and we ranked the impact of the four approaches in the following order:

- Governmental regulation, with an average rank of 8.4;
- Market/technological approach (6.8);
- Autonomous/regional approach (6.5);
- Lifestyle change (5.6).

There exists a correlation between an institution's (1) network position and (2) the attitude towards climate protection approaches and the estimation of their impact. In summary, we can locate governmental regulation and legal requirements in the core of the network, whereas implementation and realization of climate protection measures (new technologies, lifestyle change, and regional solutions, etc.) can be found at the semi-periphery and periphery of the network. Thus, the problem of climate protection can (also) be treated as the question of a successful innovation ecology, which includes the issue of the interrelation between the center and the (semi-)periphery of the Austrian climate policy network.

To sum up, this leads us to the following results: It is the "governmental core" of the network that experts treat as responsible for regulating climate protection measures, and that they urge to take more responsibility. The semi-periphery and the periphery of the network are the areas where climate protection already takes place, but actors from the (semi-)periphery sometimes miss contact and relationships with the core.

With respect to the governmental approach, 69 of 134 experts say that the state should strengthen its attempts to regulate climate protection and take more responsibility. The government is regarded as the most important institutional group for climate protection in Austria, both at the national and at the European level.

The governmental approach is considered to be the most important, playing the important role as broker. However, many meaningful activities and projects are funded and/or supported by regional initiatives. According to 23.9% of our respondents, there is a lack of coordination between the government and the regional initiatives as well as a lack of linkages between the regional initiatives.

Stakeholders who prefer the market/technological approach underline the importance of renewable energy technologies, e-mobility, and energy efficiency of buildings. Respondents who are engaged in lifestyle change activities emphasize the importance of raising public awareness and managing the discrepancies between collective effectiveness and individual ineffectiveness of measures. The autonomous approach sits in the middle or, more accurately, outside the group–grid strictures and can, therefore, adopt approaches

from any perspective. It can be state-driven, market-driven, or can be related to lifestyle change measures at the same time.

In general, stakeholders that implement and realize climate protection measures (national, regional and local decision makers, entrepreneurs, activists) have more confidence in the impact of these actions than experts (scientists, researchers) and members of social partner organizations (business associations, trade unions).

3.3. Results of the Participatory Impact Analysis

3.3.1. The Statement Mapping: Finding Common Ground

The statement mapping process indicated that there is a correlation between institutional affiliation and attitudes in the climate debate. Participants of political institutions or administration prefer governmental regulation, people from industry or business associations support market and technology solutions, civil society, at least partly, prefers lifestyle change, and local decision makers agree with regional initiatives.

As mentioned above, the participants of our workshops were asked to what extent they agree with a total of 29 statements (6 associated with each perspective with the exception of autonomism/ regionalism, for which there were five statements), and what they think the likelihood is that the situation described in the statement is implemented. Across all workshop groups, our participants supported the etatistic (government regulation) statements most (Figure 6), followed by the egalitaristic, the autonomistic, and the individualistic statements. There was no workshop with skeptic participants, and the skeptic statements were strongly rejected. On the other hand, the participants thought it is most likely that the individualistic measures prevail, followed by autonomism/regionalism, egalitarianism, and etatism (skeptic statements were considered unlikely). We can conclude that (excluding skeptic statements) governmental regulation was considered most important but least likely to be implemented.
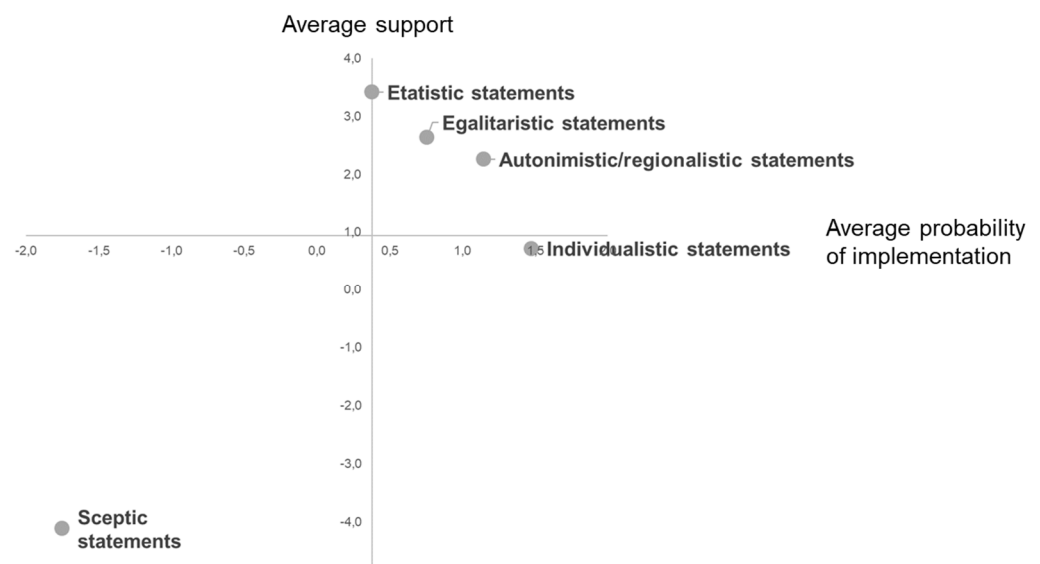

Figure 6. Statements by support and implementation probability (average of all workshop groups, maximum = 8, *n* = 26 participants). Chart: FASresearch.

It is important to note that a considerable number of people surveyed proposed that the impact of the government on climate protection measures is potentially strong but not realized, whereas the impact of the other approaches is less strong but rather actualized. Furthermore, there is a considerable correlation between the estimated impact of the regional approach and lifestyle change on the one hand and the regional and the

market approach on the other (in the sense that people who trust in regional solutions also tend to trust in lifestyle change and/or in market solutions). On the contrary, there is less correlation between the governmental climate protection approach and the other kinds of measures. It is the regional climate protection attempt that exhibits the highest correlation with all the other approaches (Figure 7).
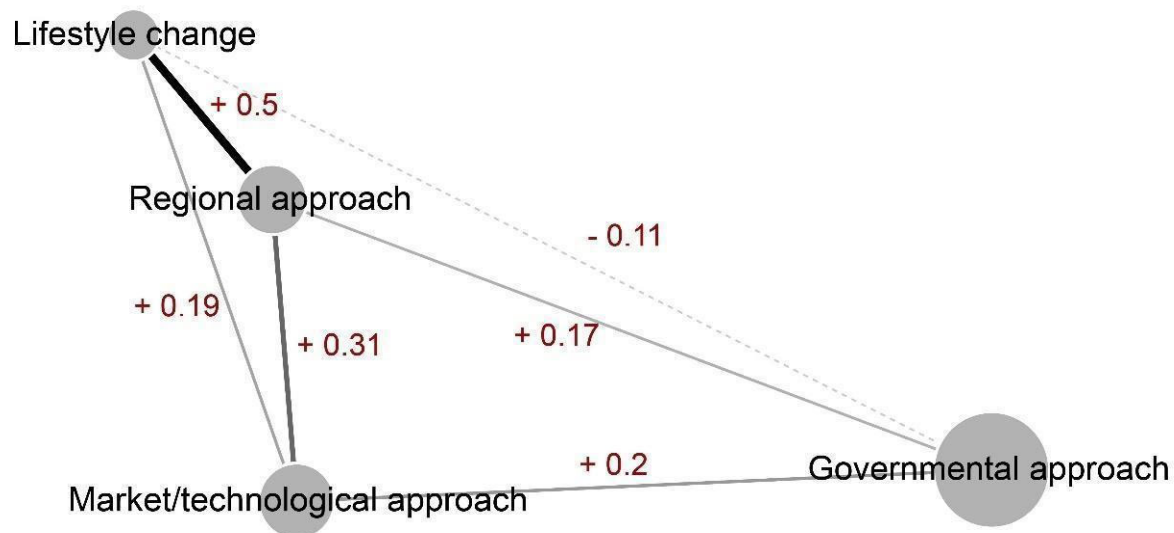
Figure 7. Pearson correlations between different climate protection approaches. Chart: FASresearch.

We wanted to know what the participants were most likely to agree on and for which statements there was the least consensus. Therefore, we computed a dissent index based on the participant's answers, as follows: If many of them agree OR disagree with a statement, we can assume that there is consensus on the subject, be it approval or rejection. If the distribution is more polarized (a lot agree, a lot disagree, just a few are indifferent), then the index shows a higher value, and we will regard this statement as rather controversial (Equation (1)).

$$Dissent = \frac{1 + \left(1 - \frac{Indifference}{100}\right)}{1 + \sqrt{\left(\frac{Approve}{100} - \frac{Disapprove}{100}\right)^2}} \tag{1}$$

Equation (1): Dissent Index (Min = 0, Max = 1)

Figure 8 shows the result combining average dissent and average support for the five kinds of statements. Our participants agree on rejecting the skeptic statements (low support, low dissent). Regarding the other perspectives, the etatistic statements show the highest support and the lowest dissent, whereas the individualistic statements show the reverse pattern, with egalitarianism and autonomism somewhere in between.

In addition to categorizing the 29 statements by the five perspectives, we also categorized them by the type of statement in terms of what it described, as follows: (1) basic moral values, (2) climate policy approaches, or (3) concrete measures. What we find particularly interesting is the fact that the participants across all groups agree most with the statements that indicated concrete measures over the ones that referred to basic moral values (average value of +2.5 compared to +0.2 on a scale of −8, −4, −2, −1, 0, +1, +2, +4, +8 with −8 = totally disagree and +8 = totally agree). Therefore, we compared the dissent values of these three types of statements in Table 3.
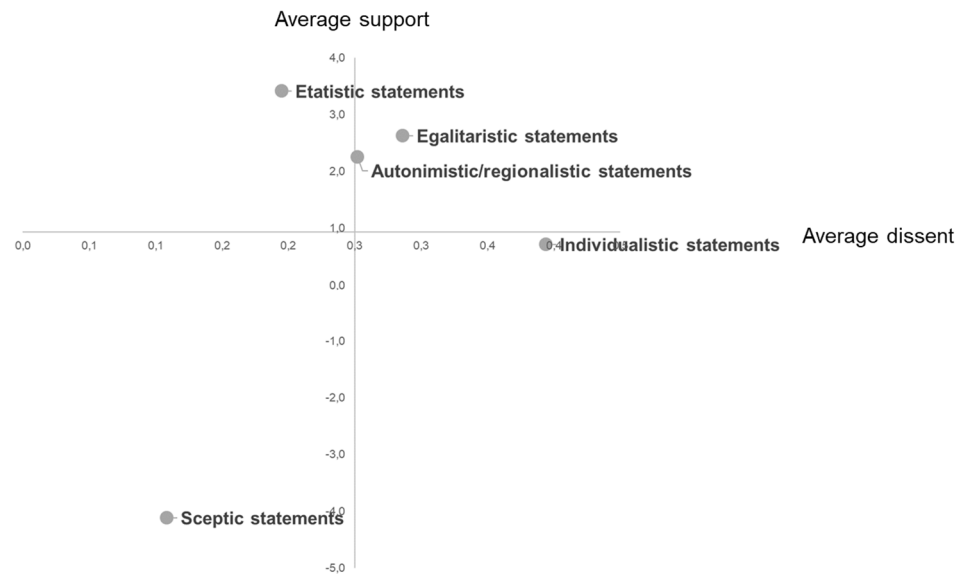
Figure 8. Statements by support (max = 8) and dissent (max = 1) (average of all workshop groups, *n* = 26 participants). Chart: FASresearch.

Table 3. Average dissent values for different kinds of statements. Table: FASresearch.

Statements	Dissent
Basic moral values	0.47
Climate policy approaches	0.25
Concrete measures	0.07
Overall Average Dissent	**0.25**

The participants of our workshops disagreed the least about concrete measures and the most about moral values, with policy approaches in the middle (Table 3). The more the statement refers to a concrete climate protection policy, the higher agreement and consensus. People tend to disagree about values, identities, and motivations more than about concrete propositions, measures, or projects. Thus, we believe that formats of decision-making should concentrate on the co-creative development of approaches (as is the case in Holling's Adaptive Co-Management [43]) rather than on reaching a compromise or consensus on the underlying ideology. It is less likely that different perspectives will agree on one approach than on a diverse portfolio. Furthermore, there is more consensus among our participants with respect to governmental and regional approaches than towards lifestyle change and market and technology solutions. This also enhances our impression that our participants (both of the stakeholder network survey and of the PIA workshops) support various approaches but regard governmental activities as particularly important.

Finally, there was one result that we found in every group (apart from the mixed group) regardless of their member's affiliations. The statement describing ecological tax reform was regarded as the climate protection measure that would have the greatest impact on successful climate protection, and all groups agreed that ecological tax reform is the most difficult and least likely to be implemented. Therefore, we compared the four different groups of experts in the field of climate policy with respect to what they regard as necessary and important for successful implementation of an ecological tax reform.

3.3.2. The Leverage Point Mapping: Towards a Clumsy Policy Co-Creation Process

After identifying the most agreeable policy via statement mapping, we moved on to leverage point mapping, the process by which the participants identify and rank success factors for implementing the policy. For purposes of describing the process, here, we present the full analysis of only the etatistic/governmental group and later present a comparison

of all groups and the most relevant results, all regarding only the implementation of an ecological tax reform.

The seven members of the governmental group defined the following success factors for a successful ecological tax reform:

(1)   Demonstrate the benefits of the tax reform;
(2)   Raise awareness;
(3)   Use emotional language;
(4)   Take taxes as control instrument;
(5)   Making distribution gains visible;
(6)   Reframing as carbon pricing;
(7)   Use carbon pricing to enable planning security;
(8)   Carbon oriented financial redistribution (administrative bodies);
(9)   Bring in Fridays for Future;
(10)   Focus on common interests;
(11)   Propose carbon tariffs.

In the next step, the participants estimated the impact of each factor on every other factor in the sense that if the first factor changes quantitatively or qualitatively, to what extent does the second factor change (scale: 0 = No Impact, 1 = Slight Impact, 2 = Moderate Impact, 4 = Strong Impact, and 8 = Enormous Impact)? This leads to a matrix in which the values represent the average impact relations among the factors. This matrix can be analyzed (1) as a scattergram (Figure 9) and (2) as a network (Figure 10). In the scattergram, the y-axis represents the average impact each factor has on all the other factors (its "active impact"), and the *x*-axis indicates the sensitivity of each factor, or how much it depends on all the other factors ("passive impact"). Active factors are controls on a system, while passive factors act as indicators for the success of the process.
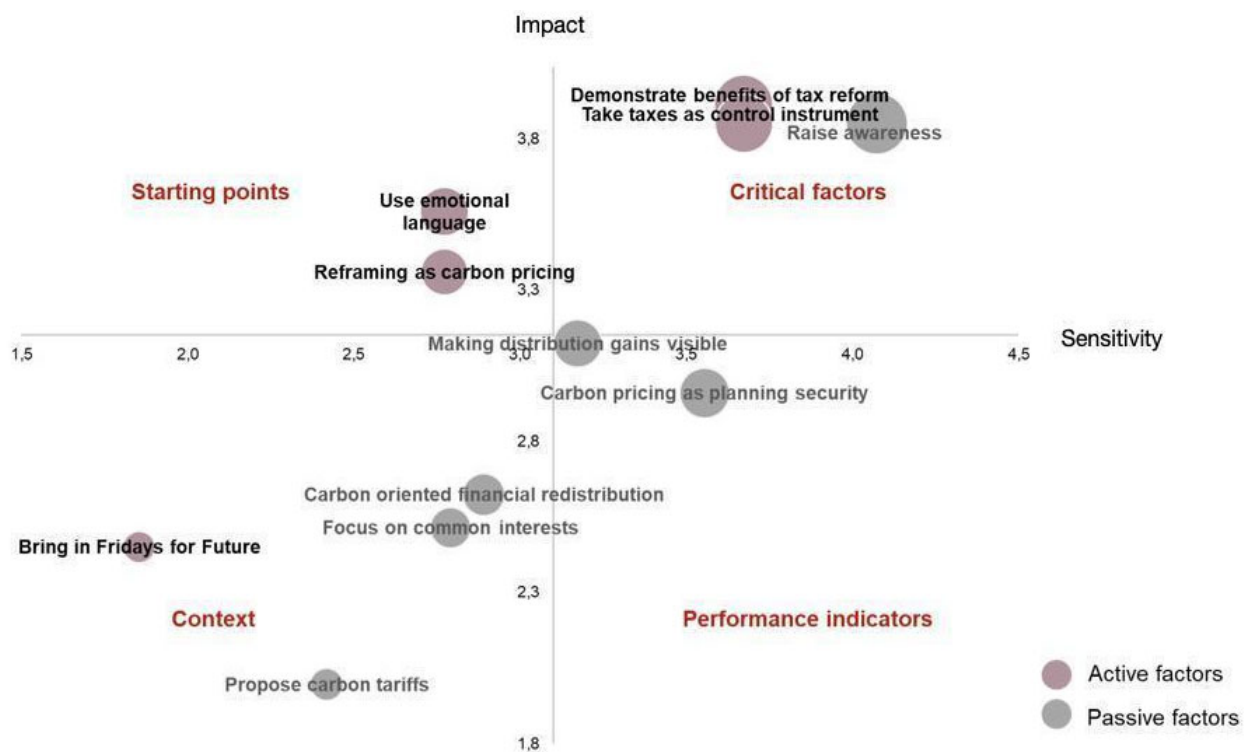
Figure 9. Scattergram showing roles of success factors for an ecological tax reform (governmental group, *n* = 7 members). Chart: FASresearch.
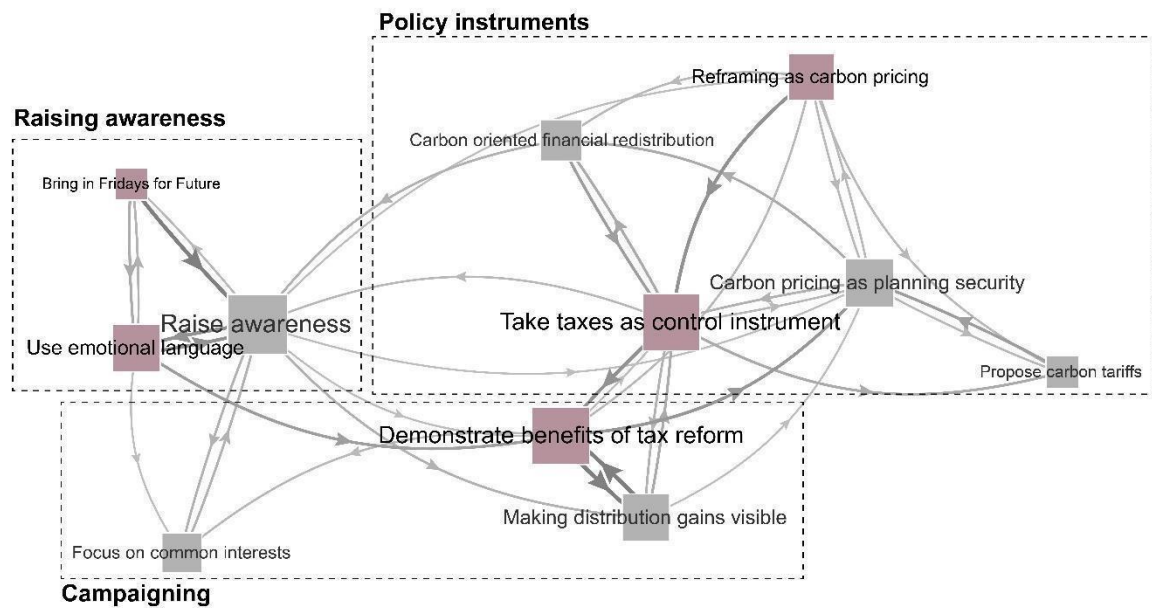
Figure 10. Network with success factors connected through causal relationships (governmental group, *n* = 7 members). Lines represent casual impact of one factor on another. Chart: FASresearch.

A factor's position within the system indicates its role in the process. "Starting points" are factors (actions/measures) that will help start the ecological tax reform process; they have high active impact but low sensitivity (upper left quadrant in Figure 9). Pulling these levers should have a positive impact on the "critical factors" (both high impact and sensitivity, upper right quadrant in Figure 9) on which the success of the whole process depends. In the further process, this should change the "performance indicators" (bottom right quadrant), which shows that we hopefully will approach the goal. "Context variables" (both low impact and sensitivity, bottom left quadrant) refer to outer conditions, which describe the context of the process but do not act as levers to control the system.

Figure 10 shows the system of success factors and the average causal relationships among them, as they were estimated by the workshop participants in the governmental group on a scale of 0 (minimum), 1, 2, 4, and 8 (maximum). The strength of the arrows represents causal impact (the extent to which the first factor changes with the second). The size of the factors indicates "criticality", that is, the product of impact on other factors and sensitivity towards the influence of them. Pink factors have more impact on other factors than they are influenced by others. Based on a picture like this an action plan can be generated by starting with active factors at the periphery, which lead to the critical and passive factors in the core (which should be treated as effects rather than causes) in order to avoid unwanted consequences.

We can distinguish three groups of factors in the network (depicted in Figure 10), as follows: the first group refers to raising awareness against the ecological tax reform, the second group includes ways of campaigning for an ecological tax reform, and the third describes policy instruments. Combining the scattergram and the network we can interpret the process of implementing an ecological tax reform preferred by members of the governmental group.

Taking the starting points into account, we see that from the governmental group's perspective, the process starts with using a simple, emotional language to demonstrate the threats of climate change in order to raise awareness and with reframing the tax reform as "carbon pricing". These will help realize the critical factors of using taxes as a control instrument (to change the system) and make it easier to demonstrate the benefits of the ecological tax reform. Finally, awareness, the visibility of distribution gains, and using

carbon pricing as planning security are treated as effects that cannot be directly triggered and are instead measures of successful implementation of the policy. The Fridays for Future movement, the carbon tariffs, the aspect of financial redistribution, and the focus on common interests act as context factors for the whole process rather than as concrete actions.

As already mentioned, all groups agreed on the necessity of an ecological tax reform but did not agree on the process of implementing it. For a summary of starting points, critical factors, and performance indicators developed by the other three types of institutions, see Appendix B. Leverage points for an ecological tax reform of each group are summarized in Table 4. Note, none of the groups regards just lifestyle change as a starting point for climate protection (they rather consider it as an effect of other measures).

Table 4. Leverage points to be acted upon by each perspective as identified in the leverage point mapping.

Governmental Approach (Etatistic Perspective)	Raise awareness among the citizens to build political legitimacy to introduce carbon taxes
Market/Technological Approach (Individualistic Perspective)	Emphasize transparency that the tax revenues are used for climate protection measures, not for bureaucracy, and that the tax reform should be conceptualized in a way that no one loses anything
Lifestyle Change (Egalitarian Perspective)	Places responsibility in government for the implementation of climate protection measures and coordinating international cooperation.
Regional Approach (Autonomous Perspective)	Communication about the variety of existing measures and initiatives should highlight the opportunities and advantages and be directed to all political parties and lobbying groups.

Each approach originates from different reasoning yet works towards the same goal of implementing an ecological tax reform for climate protection. From this, we conclude that a procedure is needed that aggregates the different approaches and implements a clumsy solution instead of finding a political compromise, which could be the lowest common denominator on which all the rationalities can agree.

3.4. Drawbacks and Limitations

Both the Referential Social Network Analysis and the Participatory Impact Analysis suffered from a lack of representation from the "skeptic" position. Due to the collaborative nature of both methods used in this study, a lack of accurate representation can limit the primary benefits of both methods, which are their ability to tackle wicked problems with clumsy solutions. Lacking a representative perspective from one of the rationalities diminishes the collaborative nature of clumsy solutions. Additionally, the in-person nature of the Participatory Impact Analysis workshops held in Vienna may have restricted attendance in some groups from geographically diverse areas of Austria such as those representing the autonomous perspective, of whom only 23.1% of the invited participants were able to attend.

3.5. The Inferred Rules Towards Clumsy Solutions

In summary, based on this research and our understanding of the Theory of Plural Rationality, we formulate nine rules of clumsy solutions. Specifically, the approach taken here employs an expert survey of Austrian stakeholders in our network analysis along with elicitations from workshops of the Participatory Impact Analysis. We encourage other researchers to further this research, testing these ideas and findings in additional cases, working toward ways to bring multiple voices into policy considerations. Our contribution in this direction are the following heuristics:

(1) **Be open to clumsiness**. It is not possible to find an elegant solution that completely solves the problem of climate change. The approach is clumsy because it combines different perceptions and approaches.

(2)　**Do the right thing for different reasons**. Instead of arguing about different values, identities, and motivations, policy should concentrate on implementing different solutions independently and at the same time.

(3)　**Take numerous small steps instead of a one-size-fits-all solution**. Rather than jumping to a top-down action, it is important to take the time for a co-creative process to unfold from the interaction of the diverse perspectives. The goal will be achieved indirectly and by a multitude of mini-steps instead of through a single leap.

(4)　**Connect the center with the periphery.** It is important to connect the local level (implementation) with the national/global perspective (regulation) to enable the flow of knowledge and resources. The autonomous agent is best prepared to engage this role.

(5)　**Aggregate solutions instead of compromising**. Against the background of polarization and fragmentation, use the "systems of distributed intelligence" [48] instead of finding the lowest common denominator (or doing nothing).

(6)　**Create plural networks.** New communication formats are needed that enable different rationalities to listen to each other and to translate the different logics into each other in order to create mutual acceptance. Participatory Impact Assessment is one method, but other interactive processes to share are needed.

(7)　**"Let's do more good instead of less bad"** (Michael Thompson, personal communication, 2020). Climate protection should be framed (also) as a process that produces positive outcomes (improved community and well-being), not only prevents negative outcomes. This could help to increase the acceptance of an approach that moves to a positive attractor rather than imposing a selection of trade-offs.

(8)　**Localize the action.** Different approaches (be it governmental, market/technology-oriented, or egalitarian) can be tested at the local level, and the "fatalistic" perspective can be better heard as well. Furthermore, the unorthodox ideas of the autonomous perspective (the "hermit") can be found here.

(9)　**Keep alternatives in mind.** Remember Heinz von Foerster's [49] quote: "Tell them they should always try to act so as to increase the number of choices." (p. 295). It is necessary to always act so as to increase the total number of choices. The Theory of Plural Rationality, by design, is an approach that draws from disparate perspectives, producing a wide range of options.

4. Conclusions

The Plural Rationality approach proposes that the different perspectives on climate policy necessarily exist because they represent usual positions and interests in policy fields. None of them will prevail over the others or ever disappear from the political field in which the climate debate takes place. From this point of view, dealing with climate change has little to do with convincing someone to give up a certain position. Mutual acceptance and the combination of motivations and different concepts of solutions will have more impact than consensus building and compromise formation. The process carried out in the Roadmap to Implementation of the Paris Agreement exemplifies a method of identifying social institutions relevant in the climate protection field, their perspectives on climate change and climate policy, and effective leverage points on which to co-creatively build climate policy. This method has been an attempt to operationalize the development of clumsy solutions for climate protection policy, but lessons learned may be applied to thinking more broadly about climate protection implementation. We learned that the governmental approach is viewed by most as having the most potentially impactful solutions and that government institutions serve as the most dominant brokerage role between other institution types. As for which climate protection approaches are most

agreed upon, the regional approaches were most acceptable, and all perspectives agreed more on concrete actions over moral values or policy suggestions. Finally, leverage point mapping, which involves the co-creation of implementation success measures, can provide an action plan to appeal to each of the TPR perspectives.

This process will not result in one single solution or a single process for working towards one solution. Instead, the array of options born from the various approaches identified in the PIA actively engages diverse perspectives that complement and define one another and are, therefore, essential in an inclusive, co-creative policy development process. Presented as a "roadmap" in the Austrian study, this can also serve as a guide to other regions, nations, or jurisdictions.

Appendix A. Items of the Statement Mapping

Dimension	Rationality	Statement
Basic values	Etatism	Governmental regulation ensures justice; every member of society receives what is due to them, but they are also obliged to reciprocate.
		A strong state, which is superordinate to the economy, is of central importance for the functioning of society.
	Individualism	Everyone should have the chance to be successful, and success is above all the result of commitment, efficiency and performance.
		Competition and the free market are the decisive factors in social development because they ensure that the best solutions prevail.
	Egalitarianism	Authorities and markets create inequality, only living in communities with like-minded people - without power and authority - can produce equality.
		What is most important for society is equality between its members.
	Autonomism/ regionalism	Centralism is blind to local needs and solutions.
		Good solutions depend on specific local conditions and therefore require federal, decentralised decision-making mechanisms.
	Scepticism	Elites and political and economic decision-makers have lost contact to ordinary people, because they only pursue their own interests.
		Who gets what is decided more or less by chance, one should take what one can get.
Climate protection approaches	Etatism	The climate protection goals can best be achieved through government regulations and international agreements.
	Individualism	Climate protection goals can best be achieved through market-based approaches and technological solutions
	Egalitarianism	Climate protection goals can best be achieved by changing lifestyles.
	Autonomism/ regionalism	Climate protection goals can best be achieved through regional initiatives and local engagement.
	Scepticism	Man has no influence on the climate.
		It is too late, the climate protection goals can no longer be achieved.
Concrete measures	Etatism	More ambitious standards, limit values and guidelines in the industrial, aviation, transport and building sectors (decarbonisation)
		Courageous ecological tax reform (taxation of energy and resources, relief of labour).
		New intergovernmental initiatives to coordinate and synchronise fiscal and tax policies towards climate change objectives within the EU and with China in particular.
	Individualism	Promotion of geoengineering-based CO_2 reduction technologies, e.g. depositing CO_2 in old mines.
		Strengthen entrepreneurial mindset and risk culture to develop alternative, new, energy-saving (digital) technologies.
		Strengthening the divestment from fossil industries and attracting new venture capital funds to finance innovations in the field of climate protection.
	Egalitarianism	Massive reinforcement of awareness campaigns with best practices of what each individual can do, as well as making the environmental impact of consumer decisions visible in order to strengthen feedback.
		Reduction of meat consumption, long distance and air travel, less "owning" more sharing
		Massive strengthening of recycling and circular economy
	Autonomism/ regionalism	Greater use of local economic structures instead of Amazon
		Develop public transport networks and energy self-sufficient regions and households with renewable (local) energy forms
	Scepticism	The measures are useless.
		As long as China does not act, all measures are pointless.

Figure A1. Description of dimensions used in Theory of Plural Rationality.

Appendix B. Summary of Starting Points, Critical Factors, and Performance Indicators Developed by Individualistic, Egalitaristic, and Autonomistic/Regionalistic Institutions

With respect to the starting points (which show high impact and low sensitivity and are placed in the upper left quadrant of the respective scattergram), the success factors of the groups (besides the governmental one) can be described as follows:

–   For the "individualistic" group (entrepreneurs and members of industry associations) the whole process can only start if carbon pricing, for competitive reasons, is implemented at an international level and not just in Austria. Furthermore, it suggested the differentiation between different industry sectors and demanded exception rules for certain industry sectors.

–   The "egalitaristic" group (NGOs) generally thought that a new government was needed to implement an ecological tax reform (at that time—May 2019—a coalition of the center-right People's Party and the far-right FPÖ formed the government in Austria). Additionally, they suggested to communicate more clearly scientific studies that prove the benefits of the tax reform for economy and business.

–   The "autonomistic/regionalistic" group (regional decision makers and representatives of regional climate protection initiatives) suggested to implement the tax reform at the very beginning of a legislative period to counter politicians' fear of not being re-elected. From the autonomistic point of view, it would raise acceptance and enhance the chances of success to reframe the tax reform as "eco-social fundraising".

When it comes to the critical factors of the ecological tax reform (both high impact and sensitivity, upper right quadrant in the diagram), the groups developed the following leverage points:

–   The "individualistic" group said that it is necessary to make the costs, the relief, and the money transfer transparent; to develop a concept so that there are just winners, no losers; to introduce an earmarking of the revenues for climate protection measures, and to reframe the carbon tax as crowdfunding (similar to the autonomistic group at the beginning of the process).

–   From the "egalitaristic" perspective, it would be necessary to coordinate the measures at least throughout Europe, and in general, more international treaties are needed (which both are quite "etatistic" arguments); furthermore, a professional communication strategy should accompany the process; and finally, politicians, entrepreneurs, and citizens should cooperate in order to break the resistance of lobbying groups that obstruct climate protection measures.

–   For the "autonomistic/regionalistic" group, it would be important to communicate measures in a positive way (highlighting opportunities and advantages), to invite prominent and popular persons to promote climate protection, and to try to persuade all political parties and lobbying groups.

Finally, the three groups treat the following factors as performance indicators (low impact, high sensitivity, bottom right quadrant of the scattergram):

–   For the "individualistic" group, the process is successful if different approaches of circular economy are compared to each other and assessed (e.g., life cycle approach, cradle to cradle). Furthermore, it argued that funding and monitoring systems for climate protection measures are revised and established.

–   The "egalitaristic" group nominated the following factors as performance indicators: the social as well as the ecological accuracy of the tax reform is ensured, consumption-oriented carbon pricing is established, the tax reform is competition-neutral, duties for non-sustainable products are imposed, incentives for the reduction in energy

consumption are created, and the advantages for "first movers" are communicated and well-known.

– The "autonomistic/regionalistic" group said that performance indicators for the process would be as follows: It was successful to implement the ecological tax reform because its revenues are used for social purposes, and eco-friendly parties form the Austrian government.

Appendix C. Dissemination of Methods and Materials

Appendix C.1. Semi-Structured Expert Interviews

These 13 interviews took place roughly between the completion of the network analysis, but before the PIA workshops. Originally, 15 interviews were planned to cover all five perspectives evenly. However, due to the difficulty in finding willing participants of the "skeptic" position, we were limited to 13 (3 interviews for each rationality plus 1 extra for the governmental sector due to overlapping appointment coordination).

Three main questions were utilized to guide the interviews, influenced by Kahane's [18] the concept of "stretch collaboration", as follows:

1. Concerning the fight against climate change, there is already enough knowledge about what needs to be done. Despite having this knowledge, we are not succeeding in implementing the necessary measures. In your opinion, what is blocking us? Where are we stuck?

2. An important result of our research project is that combating climate change requires collaboration between actors with differing viewpoints, who may dislike or distrust each other. What are your experiences in working with people who are different from you, with whom you do not agree? Whom do you not trust? What is needed for this collaboration to succeed?

3. How do you assess the chances that the current federal government will implement effective measures to combat climate change?

The answers toward these questions have been summarized below.

1. Obstacles for Implementing Climate Protection Measures

Our interviews revealed that while representatives from different rationalities identified similar obstacles to implementing climate protection measures, their detailed explanations diverged significantly. A common obstacle mentioned across all rationalities was the lack of concrete implementation plans for the government's climate goals. Representatives of the hierarchical rationality attributed this hurdle to the complexity of the political system and the ongoing negotiations among political stakeholders. Conversely, representatives of the egalitarian rationality believed that politicians adopted a power-strategic approach to avoid disappointing their electorate with potential restrictions. Those from the individualistic perspective saw the issue as inherent in the political system, where overly ambitious goals are announced without clear implementation measures due to a lack of technical expertise. Lastly, representatives of the autonomous rationality, who focus on local initiatives, noted a discrepancy between the goals set by politicians and the reality on the ground, attributing this to politicians' detachment from local events and a lack of insight into people's concrete living environments (for further details, see Appendix C).

2. Experiences with "Stretch Collaboration"

Utilizing the concept of "stretch collaboration" [18], we categorized interviewees' experiences working with people they may not like or trust, creating a framework for joint problem solving. Interestingly, there were no major differences in experiences reported by representatives of different rationalities. All interviewees had experience with this form

of collaboration and were generally positive about working with diverse stakeholders, though they emphasized different challenges. There was consensus on the need for a common sense of direction as a prerequisite for successful collaboration. Three interviewees explicitly stated that engaging with climate change deniers was no longer worthwhile. Instead, it is more effective to focus on cooperating with those who share a common sense of direction or with whom realistic chances of cooperation exist. Our results indicate that while representatives of different rationalities propose various methods to achieve their goals, they share common ideas on how to collaboratively design and negotiate the path to these goals, as follows: a minimum level of understanding of other rationalities' perceptions and interests, a shared sense of direction, and a step-by-step implementation process requiring time and patience (for further details, see Appendix A).

3.   Perception of the Current Political Situation

The establishment of a new ministry for climate policy was positively received by interviewees. Despite the potential highlighted, it was noted that climate protection cannot be addressed in isolation and requires cooperation with other ministries. Additionally, two interviewees mentioned that the climate ministry needed more time to become fully active. The current intergovernmental agreement was also viewed positively. From an ecological perspective, the interviewees regarded it as a significant improvement over previous governments, because it includes not only individual measures but also comprehensive climate protection concepts. Interviewees noted that the agreement demonstrates a deeper understanding of the problem. From an economic perspective, representatives of the individualistic rationality appreciated the integration of climate and environmental protection with an industrial strategy, which they attributed to the coalition between the People's Party and the Austrian Green Party. Compared to previous expert interviews (WP2 and WP3) and workshops (WP5), the perception of the national political situation regarding climate protection was more optimistic, partly due to the increased awareness from movements like Fridays for Future and climate protection activities at the EU level. The impact of COVID-19 was discussed in the last 4 of the 13 interviews conducted at the beginning of the crisis. Respondents from the hierarchical position were surprised by the radical measures implemented quickly, though they were unsure if such measures were suitable for climate protection. They also expressed concern that climate protection might be deprioritized in the face of the economic crisis following COVID-19.

Appendix C.2. Participatory Impact Analysis Workshops

The Participatory Impact Analysis workshops were carried out in five meetings through the months of April through June of 2019 in the order as follows:

- 9 April 2019: Representatives of administration and the perspective of governmental regulation ~58.3% confirmation rate (12 invited, 7 confirmed);
- 7 May 2019: Representatives of the economic field and the perspective of market/technological solutions ~47.1% confirmation rate (17 invited, 8 confirmed);
- 14 May 2019: Representatives of civil society and the perspective of lifestyle change ~35.3% confirmation rate (17 invited, 6 confirmed);
- 21 May 2019: Representatives of regional players and perspective ~23.1% confirmation rate (26 invited, 6 confirmed);
- 6 June 2019: Representatives of the RIPA Sounding Board (all perspectives) ~80.0% confirmation rate (5 invited, 4 confirmed).

Reasoning for varying confirmation rates can only be speculated. No surveyable metric was administered to those who declined attendance. Regional players had more

difficulty attending due to them living farther from the FASresearch offices from which the workshops were held.

Potential participants were selected from the previous Referential Network Analysis. If a potential workshop participant was unable to attend, they were asked to nominate someone from either within their company or organization, or externally if required. The following text was used to contact these individuals (translated from German):

> "In (date), we conducted an exciting expert interview with you for our study supported by the Climate and Energy Fund, "RIPA—Roadmap to the Implementation of the Paris Agreement." At that time, we discussed which initiatives and organizations are crucial for the implementation of climate protection goals and how they could be supported.
>
> As a next step in our study, based on the results of our network analysis, we would like to hold a co-creative workshop with representatives of various approaches. Together, we will identify leverage points for achieving climate protection goals and find concrete measures to activate these levers. The outcome will be a roadmap that integrates various approaches, providing guidance and specific recommendations for implementation.
>
> As an expert in the field of (insert area) and a representative of the (insert perspective) approach, we would be delighted if you could participate in our workshop. As a token of our appreciation, we will share the workshop results with you in the form of a report immediately afterward. The workshop will take place at FASresearch at (address), on (date). I will call you in the next few days to inquire if you are interested in participating in the workshop.
>
> Thank you very much and best regards. . ."

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