D3.2 The role of ÖKS15 in decision making processes - Report on the results of WP3.2 of the project “Use.AT”

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1. Introduction

Use.AT is a research project funded by the Austrian Climate and Energy Fund as part of the ACRP funding program. It aims at systematically harvesting learnings from Austria's current national climate scenarios, ÖKS15, and comparable international approaches. Thus, it contributes as an accompanying research project to the development of new Austrian climate scenarios as part of the Climate Scenarios.AT initiative (see www.klimaszenarien.at).

This report summarizes the results of the activities in WP3.2 of Use.AT. The aim was to learn from users of the ÖKS15 regarding their work with ÖKS15, the requirements they need to execute their tasks, and the challenges and improvement potential they see. The results will be used to derive recommendations on who are core user groups, what features of ÖKS15 should be maintained in ÖKS26, which features could be improved, and which new features should be added. To achieve these results, we first executed an online survey aiming towards all ÖKS15 users. We then deepened the insights by performing 20 interviews with selected users.

2. Objectives of the survey and interviews

2.1 Survey

The main aim of the survey was to examine the use of the Austrian climate scenarios ÖKS15 and the needs regarding the use of climate data, presentation and communication formats, as well as specific climate services, in order to determine how the user-friendliness of the upcoming new Austrian climate scenarios can be improved.

More concretely the following aspects were investigated:

1. Characterize different types of users,
2. To better understand what types of users use which functionalities of ÖKS15,
3. Measure various aspects of satisfaction with ÖKS15 and identify aspects that influence the satisfaction (e.g. effort expectancy, support, facilitating conditions, etc.),
4. Identify barriers for the use and
5. Identify optimization potential.

2.2 Interviews

The interviews aimed at further deepening and differentiating the insights we gathered from the survey and to better understand how ÖKS15 are used in the everyday working life of users.

More concretely we aimed at gathering details on

1. Experience with ÖKS15
2. Needed information
3. Assessment of Quality
4. Improvement potential

3. Methodology and key questions

3.1 Survey

3.1.1 Survey design

The survey consisted of 27 structured questions and was distributed online via LimeSurvey, hosted on a dedicated server at Joanneum Research. It included a combination of multiple-choice and Likert-scale questions and required approximately 10–15 minutes to complete. Participation was voluntary, and informed consent was obtained at the beginning of the survey.

The questionnaire was structured into several thematic blocks (for details see Appendix):

4. **Demographic and Professional Background**: Questions about age group, gender, and employment sector (e.g., academia, government, NGOs, private sector).

5. **Familiarity with ÖKS15**: Introduction to the Austrian Climate Scenarios (ÖKS15), followed by questions on prior awareness and channels where users were exposed to ÖKS15 for the first time (e.g., publications, conferences).
6. **Use and Perception of ÖKS15 Products**: Assessment of how frequently respondents used different formats (datasets, maps, factsheets) and for what purposes (e.g., planning, communication, modelling). This section was informed by the Unified Theory of Acceptance and Use of Technology (UTAUT2, see also 4.1) and included self-report statements on usefulness, ease of use, social influence, and performance expectancy.
7. **Experience and frequency of use**: Respondents were asked when they first learned about or used the climate scenarios and how frequently they had used them so far.
8. **Detailed Evaluation**: A "deep dive" section gathered more detailed user feedback on technical and usability aspects such as preferred data formats and platforms, perceived challenges in using the data or visualizations, and ratings of data quality dimensions (e.g., spatial/temporal resolution, support availability). This block was intentionally positioned at the end of the survey, to encourage interested users to give detailed feedback while less-interested users could quit the survey and still provided broad information from the preceding blocks.

3.1.2 Survey Procedure

The survey was conducted from March to July 2024 and was widely disseminated via newsletters and contact lists of the Use.AT project consortium in order to comprehensively reach the circle of potential users in Austria. In total, over 300 individuals participated; following data cleaning and validation, the analytical sample consists of 171 valid respondents, who provided at least partial answers to the relevant question blocks.

Since the total population of previous users of the ÖKS15 climate scenarios is unknown (e.g., the downloading of ÖKS15 data was not systematically recorded, and downloaded data may be used by multiple individuals within the same institution; factsheets are freely available online), a response rate for the survey cannot be determined. However, as the potential user base in Austria is relatively small—given that only a limited number of research institutions and administrative bodies at all levels of governance are active in climate research and policy—it can be assumed that the survey results provide a sufficiently representative picture, even though they are based on convenience sample.

3.1.3 Survey analysis

The survey data was analyzed using SPSS software, employing a combination of descriptive statistics, mean value comparisons, and regression analysis.

Descriptive analyses were used to summarise key characteristics of the sample and to explore general patterns in participants' responses, such as frequency distributions and measures of central tendency (e.g., means, medians) and dispersion (e.g., standard deviations). To examine differences between subgroups (e.g., users vs. non-users of ÖKS15), comparisons of mean values were conducted using t-tests or ANOVA, depending on the number of groups involved. In addition, regression analysis was performed to identify potential predictors of ÖKS15 usage, allowing for the examination of relationships between demographic or institutional factors and respondents' reported experiences

with the climate scenarios. This approach using multiple statistical techniques provided a robust statistical basis for interpreting the survey results and identifying key user needs and barriers.

3.2 Interviews

3.2.1 Interview design

The semi-structured interviews followed a standardized guideline designed to capture user experiences, perceptions, and expectations regarding the Austrian Climate Scenarios (ÖKS15). Each interview began with a short welcome, clarification of the purpose, consent confirmation in line with General Data Protection Regulation (GDPR) requirements, and initiation of the audio recording.

The conversation was structured into the following thematic blocks, partially stemming from theoretical considerations (User Status, Use Case and Information Needs, Improvement suggestions) or ask for additional information on aspects identified as potential pain points in the survey (Perceived Quality and Usability, Support Expectations):

9. **Introduction and Personal Connection to ÖKS**: Participants were asked to reflect on their general impression of the ÖKS, their first encounter with the scenarios, and whether this occurred through active search or by chance. Key events that may have influenced the perceived relevance of climate scenarios were also explored.
10. **User Status and Engagement**: Participants described their first use, reasons for non-use, or any barriers encountered and how these were overcome.
11. **Use Cases and Information Needs**: Participants (especially users) detailed their specific use cases and whether they had developed products or services using ÖKS data. All interviewees were asked about their current and anticipated future information needs, as well as other sources they rely on.
12. **Perceived Quality and Usability**: Interviewees evaluated the overall quality of the ÖKS products, including data clarity, resolution, comprehensibility, indicator relevance, and visualization features. Usability aspects, such as ease of navigation and accessibility, were also discussed.
13. **Support Expectations**: The potential value of additional support services (e.g., chat or phone support) was explored, including specific expectations regarding such support.
14. **Improvement Suggestions ("Ideal World")**: Participants were invited to propose ideal solutions to the challenges they identified—ignoring feasibility or budget constraints—particularly regarding orientation, data presentation, and visualization.
15. **Conclusion and Satisfaction**: Participants gave an overall satisfaction rating (1–10) and reflected on the effort-benefit balance of using ÖKS data.

Each interview concluded with a thank-you note and, where appropriate, an invitation for further exchange.

3.2.2 Interview procedure

To recruit interview partners, we asked in the survey who of the survey respondents would be willing to take part in a follow-up interview. If someone agreed, he or she was directly forwarded to a new homepage with potential interview schedules and the participant could choose the date most suitable.

Interviewees were purposefully selected to cover a broad range of user subgroups. That way, 20 interviews with users were conducted, and 3 interviews with non-users. Non-users refer to people who could typically use climate scenarios in their work context but did not use ÖKS15. This provides additional insights into challenges and barriers connected to the use of ÖKS15. However, in the following, we focus on the interviews with the users, as they can provide more detailed information regarding challenges, opportunities, use cases and optimisation potential for climate scenarios and ÖKS15 in specific.

The interviews themselves were organised online. On behalf of Use.AT always two persons led the interview: One expert on the content and one social science expert with experience in leading interviews. The interviews were conducted between 8th of October and 3rd of December 2024. Written consent was received by all participants. The interviews were recorded and auto-transcribed. The auto-transcription was corrected by the social-science experts after the interviews. Interviewers additionally made short thought logs immediately after the interview to already highlight the main insights of the respective interviews.

3.2.3 Interview analysis

The interviews were analysed both inductively and deductively. In the inductive part the answers were screened and then coded according to the topics mentioned in the respective part, using the overarching interview topics as presented above as top-level codes and refining by introducing additional lower-level codes to capture the most prominent aspects. The deductive part builds on the dimensions of the Unified Theory of Acceptance and Use of Technology 2(UTAUT2) framework. This theory claims to explain whether someone will adopt a new technology or not and as such fits well to explain the adoption of climate-service tools. Its 5 main dimensions 1) Performance Expectancy, 2) Effort Expectancy, 3) Social Influence, 4) Facilitating Conditions and 5) Hedonic Motivation were defined according to the underlying theoretical concepts and applicable responses were coded accordingly. Furthermore, it was determined if a statement can be interpreted as low, medium or high expression of the respective dimension by using anchor statements for the respective scale steps.

4. Results & Analysis

4.1 Survey

4.1.1 Categorization of respondents

Regarding categorization by the users' profession, we can observe that most of the survey respondents come from public authorities (sustainability managers and consulters of municipalities, cities, regional authorities and public infrastructure companies), followed by scientists (from universities and non-university research institutes), private companies (consultancies, planning offices, and insurance companies). Professionals from NGOs and media seem to be less familiar with ÖKS15, as they constitute only a small share of survey respondents.

Profession	Percentage of Respondents	N
Public Authority	46.3	75
Scientists	27.8	45
Commercial service providers	14.2	23
NGOs	8.0	13
Journalists	3.7	6
Total	**100**	**162**

TABLE 1: PROFESSION OF SURVEY RESPONDENTS

Regarding sociodemographic characteristics, we see a relatively even distribution with regards to gender (scientists: 48 percent female, NGOs: 40 percent female, public authorities: 45 percent female, companies: 52 percent female) with the exception of journalists (100 percent female; however just 6 respondents in this group). With regards to age, all groups are mainly from the age groups of 25-34 or 35-44, again with the exception of journalists, where a clear majority of 66 percent is in the age group of 25 to 34.

4.1.2 Patterns of Use

With regards to professional categories, we see clear differences in the use patterns of different professions: While 100 percent of journalists[1], 86 percent of NGOs and 39 percent of public authorities never use raw data, this only accounts for 22 to 25 percent of companies and scientists.

The picture changes for graphical figures: 52 percent of public authorities, 50 percent of journalists and 44 percent of private companies said that they are using graphical figures always or often, but only 29 percent of NGOs and 28 percent of scientists.

Reports and fact-sheets are used “often or always” by 55 percent of public authorities, 43 percent of NGOs, 33 percent of companies, 25 percent of scientists and none of the journalists.

It seems that while raw data is used more strongly by scientists and commercial service providers, graphical figures and reports and fact sheets are especially relevant for public authorities and NGOs (the latter especially focussing on reports and fact sheets). It might be that the respective groups focus on those products which they need most. One potential conclusion might be, that, since we see that commercial service providers are using them, but in a smaller amount than the scientists, the provided data could be expanded to better serve the needs of this group (e.g. by providing data especially relevant for insurance or determination of suitable company locations).

[1] Note that only 2 journalists have responded to this part of the survey. Conclusions for this user group therefore needs to be drawn very carefully.

Use of Raw Data						
Stakeholder Group	**Never**	**Rarely**	**Sometimes**	**Often**	**Always**	**N**
Public Authority	38.7	32.3	22.6	6.5	0	31
Scientists	27.3	18.2	18.2	36.4	0	22
Commercial service providers	22.2	44.4	11.1	22.2	0	9
NGOs	85.7	0	14.3	0	0	7
Journalists	100	0	0	0	0	2
Use of graphical figures						
Public Authority	6.5	19.4	22.6	45.2	6.5	31
Scientists	27.3	31.8	13.6	27.3	0	22
Commercial service providers	11.1	33.3	11.1	44.4	0	9
NGOs	0	57.1	14.3	28.6	0	7
Journalists	50.0	0	50.0	0	0	2
Use of reports and fact sheets						
Public Authority	6.5	16.1	22.6	51.6	3.2	31
Scientists	18.2	40.9	13.6	22.7	4.5	22
Commercial service providers	11.1	22.2	33.3	33.3	0	9
NGOs	0	28.6	28.6	42.9	0	7
Journalists	0	50.0	50.0	0	0	2

TABLE 2: USE OF DIFFERENT CLIMATE SERVICE TOOLS BY DIFFERENT PROFESSIONS:

A closer look on the purposes ÖKS15 are used for (table below) reveal that they are most commonly used for communicative and illustrative purposes across professional groups. Activities such as **illustrating climate risks for decision makers** and **for citizens** are among the most frequently cited, highlighting the central role of climate scenarios in awareness-raising and strategic communication. In contrast, more technical or exploratory uses—such as **using climate scenarios as databases for planning or modelling**, **playing around with data**, or **risk assessment for investments**—are reported less frequently overall. This suggests that while climate scenarios serve as a valuable tool for informing action and addressing climate-related challenges, their potential as analytical or experimental resources is less widely tapped across the professional landscape.

Public authorities primarily use climate scenarios for communication and strategic decision-making. The most frequent application is illustrating climate risks for decision makers (77.4%), followed by communicating risks to citizens (61.3%) and integrating these insights into strategic documents (58.1%). Identifying risk zones (41.9%) is also common, highlighting their focus on territorial and policy-related planning. However, they make relatively limited use of scenarios as databases for planning (19.4%) or modelling (29.0%), and rarely for experimental purposes like “playing around with data” (16.1%) or investment risk assessment (3.2%).

Scientists, on the other hand, use climate scenarios in a more analytical and technical context. A significant proportion engages with scenarios for data modelling (40.9%) and exploratory data analysis (40.9%). They also use scenarios to illustrate risks for citizens (40.9%) and compare regions (31.8%), showing some engagement in reaching out to non-academic audiences. Yet, their use of scenarios to

communicate with decision makers (22.7%) or contribute to strategy documents (13.6%) is relatively limited, indicating a stronger focus on research than on informing policy.

Commercial service providers predominantly use climate scenarios for strategic purposes and comparative analysis. The highest usage is for identifying risk zones and presenting problems in strategy documents (both 55.6%), followed by communicating with decision makers and data modelling (both 44.4%). Their use is largely pragmatic, supporting business planning and risk evaluation, while engagement with citizens (22.2%) or exploratory data use (0%) remains low. Risk assessment for investments is reported by only a small share (11.1%), so this purpose either is not (yet) dominant in their business portfolio, or the ÖKS15 scenarios are not particularly useful for this purpose.

NGOs use climate scenarios mainly to support their advocacy and for communication efforts. More than half of the respondents from this group use them to illustrate climate risks for both citizens and decision makers (57.1%), and a significant share apply them to identify risk zones (42.9%). Their use of scenarios for technical purposes, such as planning or modelling databases, is minimal, underlining their orientation toward public awareness and stakeholder engagement.

Journalists show a very narrow usage pattern. They only mention illustrating climate risks for citizens (50.0%), reflecting a strong emphasis on public communication. No use is reported for more technical or strategic functions, suggesting limited integration of climate scenarios into journalistic practice beyond risk illustration.

	Identifying risk zones	Comparing regions	Illustrating Climate risks for citizens	Illustrating Climate risks for decision makers	Presentation of problems in strategy document	Data base for planning	Data base for modelling	Playing around with data	Risk assessment for investments
Public Authority	41.9	22.6	61.3	77.4	58.1	19.4	29.0	16.1	3.2
Scientists	27.3	31.8	40.9	22.7	13.6	18.2	40.9	40.9	22.7
Commercial service providers	55.6	44.4	22.2	44.4	55.6	11.1	44.4	0	11.1
NGOs	42.9	28.6	57.1	57.1	14.3	14.3	14.3	28.6	0
Journalists	0	0	50.0	0	0	0	0	0	0

TABLE 3: CONCRETE USE OF CLIMATE SERVICE TOOLS BY DIFFERENT PROFESSIONS:

4.1.3 What influences the use of ÖKS15?

In a next step we wanted to know what influences the use of ÖKS15. For that purpose we use the Unified Theory of Acceptance and Use of Technology 2 (UTAUT2, Venkatesh, Thong and XU, 2012). UTAUT2 is a theoretical model that explains user acceptance and use of technology by integrating behavioral, social, and economic factors in consumer contexts. It posits that the use of a technology is influenced by

1. Performance Expectancy – Belief that using the technology will improve outcomes or efficiency.
2. Effort Expectancy – Perceived ease of using the technology.

3. Social Influence – The extent to which important others encourage or expect its use.
4. Facilitating Conditions – Perception that supportive resources and infrastructure are available.
5. Hedonic Motivation – The enjoyment or pleasure derived from using the technology.

As a 6th variable, originally Habit was considered, but an inspection of the variables included in the scale revealed a very low reliability, leading to the decision to exclude this dimension (however, we checked for potential influence and found none).

We use a regression model to determine how strongly these dimensions influence the frequency of using raw data, graphical figures and reports and fact sheets.

	Use of Raw Data	Use of Graphs	Use of Reports
Performance Expectancy	0.154	**0.414***	*0.260†*
Effort Expectancy	*-0.347†*	-0.030	**0.358***
Facilitating Conditions	0.159	-0.008	0.183
Social Influence	0.296	0.104	0.063
Hedonic Motivation	0.186	-0.006	-0.137
R^2	0.129	0.089	0.356
F(df)	2.009 (34)	1.963 (49)	6.761 (52)
N	35	50	53

TABLE 4: REGRESSION ANALYSIS OF UTAUT2 SCALES ON FREQUENCY OF USE OF DIFFERENT ÖKS15 PRODUCTS

For **use of raw data**, the model explained 12.9% of the variance (R^2=0.129), with a marginally significant overall model fit (F=2.009, df=34) (table X). **Effort expectancy (EE)** demonstrated a trend-level negative relationship (β=−0.347, p<.1), counterintuitively suggesting that higher perceived effort may increase users' engagement with raw data. Two potential reasons might explain this relationship: First of all, it might be, that ÖKS15 is the only format that provides the data people need for their analysis. So it doesn't matter if people think they will need high effort, they still must use ÖKS15. A second possible explanation would be, that people who use the data frequently naturally have a higher information requirement and therefore know that it needs more time to redrive this information, than someone using the data more infrequently.

Other usability factors such as performance expectancy (perceived usefulness), facilitating conditions (available support), and habit (automaticity) did not significantly predict usage frequency. This suggests that while these dimensions are often central in technology acceptance models, they may be less influential in this specific context, again for the mentioned reason: If there are no alternative raw data available than those provided, performance expectancy might turn irrelevant, as users must use the data they have.

Moving on to assessing the predictors of how frequently professionals use graphical figures within Austrian climate scenario formats, The regression model for **use of graphical solutions** was not statistically significant overall (F=1.963, df=49), with a relatively low R^2 of 0.089.

Among the included variables, **performance expectancy** stands out as the only significant predictor (β = 0.41, p <0.05) (see table above). This suggests that individuals are more likely to use graphical representations when they perceive them as helpful for improving their job performance or

supporting their professional tasks. In other words, **perceived usefulness** is a key driver of graphical scenario use.

Other predictors—namely **effort expectancy**, **facilitating conditions**, **social influence**, **hedonic motivation**, and **habit**—did not significantly influence usage frequency ($p > .05$). This indicates that aspects such as ease of use, available support, enjoyment, or social pressure are less relevant when it comes to the use of graphical climate scenario formats. In contrast to the use of raw data, here the **instrumental value** of the format takes precedence. This highlights the importance of demonstrating concrete benefits to encourage greater adoption of visual scenario tools.

Finally, the model predicting **use of reports and factsheets** showed a substantial explanatory power, with R^2=0.356 and a significant model fit (F=6.761, df=52, p<.05). The model explains 35,6% of the variance, indicating a relatively strong predictive performance.

Effort Expectancy predicted the use of reports strongest, followed by a marginal influence of **Performance Expectancy**. This indicates that professionals are more likely to use reports and factsheets when they both expect these formats to be useful in supporting their work and perceive them as easy to use. Thus, instrumental factors—how effective and how user-friendly a tool is—are central in driving the adoption of textual climate scenario formats.

Other predictors, including **social influence**, **hedonic motivation**, and **facilitating conditions**, did not show statistically significant effects. This suggests that for reports and factsheets, pragmatic utility and usability are more influential than emotional enjoyment, or social encouragement.

The regression analyses across the three climate scenario formats—use of raw data, graphical figures, and reports/factsheets—reveal distinct drivers behind professional engagement. The use of raw data is not strongly driven by any of the used scales, indicating that there might be no other source that users can use, so they need to rely on it anyway. In contrast, the use of graphical figures is predicted solely by performance expectancy, highlighting that visual formats are primarily adopted when they are seen as directly useful for the users' work. Finally, reports and factsheets are influenced by both performance expectancy and effort expectancy, suggesting these textual formats are used more frequently when perceived as both beneficial and easy to handle. This comparison underscores that perceived utility drives the use of visual formats, and a mix of utility and usability motivates the uptake of reports and factsheets. Each format thus requires different strategies for promoting adoption depending on its cognitive and emotional engagement profile. Furthermore, Performance Expectancy is the only variable that shows relatively stable influence. This suggests, that expected usefulness remains central in the use of such services and that more "feel-good" variables such as Effort Expectancy are partially relevant, but to a lesser extent. For the creators of climate-services this means, that first focus always should be given to the quality of the produced product.

4.1.4 Recommendations for future climate scenarios

Based on the regression findings for different climate scenario formats, several key recommendations can be made for future Austrian climate scenarios. Since the use of raw data, graphical figures, and reports or factsheets are driven by different factors, a tailored approach is essential rather than a one-size-fits-all strategy. For users engaging with raw data, if at all, only Effort Expectancy seem to play a

role, suggesting that users have no real alternatives than using the data provided by ÖKS15. However, that might change in the future and then other factors might come into play.

In contrast, the use of graphical formats is predominantly influenced by their perceived usefulness. Therefore, future Austrian climate scenarios should focus on clearly demonstrating the practical value of these visual tools, for example by providing case studies, application guides, and easily adaptable visuals that professionals can directly apply in communication and planning. For reports and factsheets, both the perceived usefulness and ease of use are crucial. To enhance their uptake, these documents should be designed to be highly accessible, with clear, action-oriented content, well-structured layouts, quick summaries, and visual aids that make them easy to navigate and apply in decision-making processes.

Overall, it is important to segment users by professional group and tailor formats and support accordingly, ensuring that the different needs of public authorities, scientists, companies, and NGOs are met with appropriate formats and guidance. Strengthening facilitating conditions through training, documentation, and reliable technical support will further reduce barriers, especially for data- and graphic-intensive formats. By recognizing and addressing the distinct motivations behind each format's use, the successor of ÖKS15 can enhance its relevance, usability, and impact across a broad range of stakeholders.

4.2 Interviews

To further deepen the analysis, we performed 20 interviews with experts from the different domains (see table in Appendix) and three additional interview with non-users, that is persons that potentially can use ÖKS15, but don't. The main analysis will focus on the users since they can give much more detailed information. Again, we will report the results according to the different professional groups. Twelve interviews were held with employees of the public sector, six with commercial service providers. Only one person each identified themselves as journalists or as scientists & researchers. The results of the interviews serve as in-depth insight into the use of climate scenarios of representatives of each professional group. However, they do not necessarily cover all aspects and topics that might be of relevance for each group.

4.2.1 Area of Use

The interviews reveal a broad spectrum of uses and challenges associated with the Austrian climate scenarios ÖKS15.

Among **commercial service providers**, the focus lies heavily on developing climate risk assessment products tailored for sectors such as forestry, agriculture, and tourism. For instance, one provider highlighted the importance of "calculating damage from frost" and developing drought-related products based on weather data to support clients. These providers also emphasize the increasing necessity to align with evolving regulations, such as the upcoming Corporate Sustainability Reporting Directive (CSRD), by "developing a product that integrates both regulations into the process, taking physical climate risks into account." Despite their expertise, many commercial service providers face difficulties in communicating complex climate data effectively, noting that "complex information is difficult to pass on" to smaller companies and stakeholders lacking in-house capacity.

Public sector employees utilize the ÖKS15 scenarios strongly to develop regional and municipal climate adaptation strategies, often tailored to the specific geographic and socio-economic contexts of the region they are working in. Experts emphasize the importance of local conditions—such as altitude and mountainous terrain in Tyrol—in shaping energy infrastructure and resilience measures. One expert noted that "availability of water is increasingly becoming an issue in Tyrol," highlighting the resource challenges driving adaptation efforts. This group is responsible not only for crafting climate strategies, such as the "climate change adaptation strategy for an Austrian city based on the RCP 8.5 scenario," but also for translating complex scientific data into accessible formats like fact sheets, reports, and presentations for policymakers and administrative staff. Training and awareness-raising activities are central to their work, with sessions focused on "heat-related challenges" and community engagement efforts aimed at "raising awareness with municipalities, politicians, and the population." They also integrate climate data into broader natural hazard management programs and regional planning processes, ensuring that climate risks inform policy and action at multiple governance levels.

The role of **journalists** in this ecosystem centres on translating technical climate scenario data into accessible narratives for the public. The one participant referenced a "newspaper series on future development at the state level," aiming to make the consequences of climate change tangible to a wider audience.

Lastly, **scientists and researchers** contribute by leveraging ÖKS15 raw data to underpin local climate impact studies and applied research in agriculture and tourism. Their work includes analysing phenomena such as "heat mortality based on excess mortality data" and investigating invasive species and their relation to changing climatic conditions. By providing targeted scenario analyses, these experts support municipal planning and the adaptation of sectors sensitive to climate variability.

Together, these diverse professional perspectives paint a comprehensive picture of how the ÖKS15 climate scenarios are being utilized to inform climate risk assessment, policy development, and adaptive strategies across Austria's public and private sectors.

4.2.2 Current and future data requirements

Commercial service providers express a strong demand for high-resolution and geographically detailed climate data to support their diverse client bases across Austria. Their future needs include kilometre-scale data for temperature and hail occurrence, and uniform climate models applicable across multiple countries. One provider noted the necessity of "model uniformity for all countries" and "higher resolution for temperatures" to improve risk assessments. Current information priorities focus on clarity and usability of data, with requests for "which model is going to be used and what are the differences between them" as well as "raw data sets with detailed questions" to enable precise drought risk evaluation. Sector-specific information is especially relevant for tourism, where economic impacts of wind, days on which it is possible to artificially snow the skiing tracks, and temperature trends are critical. Providers also flagged challenges such as hardware limitations and the high costs of detailed flood event analyses. For example, assessing "RCP 8.5 in 2100 to estimate business impacts and probabilities of occurrence" is a key input for business planning, while drought data gaps in current ÖKS products remain a concern.

The **public sector** requires climate data that supports practical adaptation and vulnerability analyses at local and regional scales. They emphasize the importance of "spatial resolution and local

differences" to capture specific exposure patterns, such as slope orientation or altitude effects, which influence heating and cooling demands as well as water availability. One expert highlighted that "availability of water is becoming increasingly critical" and requested future scenarios to assist with planning. Heat and precipitation patterns, including extreme events like heavy rain and drought, are core concerns. Specific data demands include indicators for heat days, frost, vegetation periods, hail maps, and maximum wind speeds relevant to energy infrastructure. The complexity of insuring against wind and hail remains a challenge. One decisionmaker noted the need for "finely resolved regional data" to support vulnerability assessments.

Journalists focus on accessible climate indicators that help convey climate trends to the public. They seek data on "precipitation, temperature, frost days, sunshine duration, and snowfall" both for current reporting and future projections.

Scientists and researchers require detailed technical information about model reliability and climate parameters to advance local climate impact studies and scenario development. Their future needs include "information on the power of the models," parameters related to wind and moisture, and processes affecting the water cycle. They also look for sub daily scales, changes in weather patterns, aerosol concentrations, and high-resolution regional scenarios to refine their analyses. Currently, scientists focus on both "average and extreme scenarios" to underpin research on climate variability and its impacts.

4.2.3 Optimisation Potential

Commercial service providers face challenges navigating the complex and often confusing landscape of climate data and models on the ÖKS page. They spend excessive time deciding which model is relevant and which they should choose, all while sifting through a jungle of diverse datasets. They wish for easy-to-use interfaces that minimize time spent on understanding and choosing the data. Commercial service providers emphasize the importance of ready-made indices, especially with hourly components for rainfall and drought duration, and call for clearer, less cryptic labelling and more user-friendly, modern web platforms. They see simplified communication tailored to specific sectors such as tourism as vital, with graphical dashboards and color-coded key indicators that allow customers to explore future scenarios independently, reducing their reliance on consultants to spell out the specific implications of each scenario. They also highlight the absence of a centralized contact point or standardized criteria for model quality, which complicates trust and comparability. Automation of data processing and improved visualization for extreme weather events, like floods and hail, are requested, alongside integration into existing GIS systems and detailed regional risk maps. Bundled packages offering practical recommendations and data examples would help transform climate information into actionable insights.

The public sector shares similar needs focused on accessibility, clarity, and usability of climate data. These groups seek well-prepared data translated into language understandable for non-experts, with high-resolution scenarios especially for critical targets like the 1.5°C warming limit. There is a demand for interactive online maps and tools that allow users to click on regions to retrieve localized climate projections, supported by regular updates and visual aids that contextualize data with practical examples. For them it is crucial to have simple, intuitive access to site-specific results, accompanied by less theoretical and more application-oriented guidance. Visualizations and fact sheets tailored for easy consumption, including warnings and risk assessments relevant to sectors like energy, forestry,

and tourism, are highly valued. They also stress the importance of integrating multidisciplinary perspectives and early warning systems while fostering a positive, solution-oriented mindset instead of fatalism.

Scientists call for increased spatial and temporal resolution in datasets, consistent communication standards, and inclusion of all relevant climate factors such as water balance and aerosol concentrations. They advocate for harmonized modelling periods and calendars across datasets to facilitate comparison and combined analysis, avoiding artificial boundaries such as national borders that hinder interpolation. Web atlases or platforms featuring overarching results supported by public funding could serve as centralized repositories. Scientists also highlight the need for comprehensive data covering winter seasons, improved aerosol data, and tools for detailed regional climate advisory services to support localized adaptation efforts.

Journalists experience difficulties finding relevant climate data and require user-friendly, well-structured presentations that make complex information accessible to the public. They wish for an interactive map of Austria where regions can be explored to see projected climate parameters for the coming decades and desire easy options to download datasets for reporting and analysis. Clear, visually appealing formats that facilitate storytelling and public understanding of climate risks and adaptation pathways are crucial to their work.

4.2.4 Expectations to support

Commercial service providers ideally prefer a system so intuitive and clear that no external support is necessary. However, when support is needed, they expect access to a real human contact rather than automated chatbots—someone knowledgeable who can assist with models, combinations of models, and interpretation of complex data. Many also express the desire for a dedicated independent organization that sets clear scientific standards and criteria for models to increase trust and clarity. This organization should act as a translator between scientific complexity and practical business needs. Data consultations to clarify objectives and select appropriate methods are highly valued.

The public sector seeks clear and accessible support channels, such as central contact points or helpdesks, capable of answering detailed and practical questions. They appreciate tailored, individual services that address region-specific needs and provide actionable recommendations. Support for interpreting complex data and clarifying detailed questions is also interesting for this group, helping them to make informed decisions and communicate risks clearly to their constituencies. Also support for data handling—such as downloading and preparing datasets—would be appreciated. They also value explanatory videos and easy-to-access communication channels like email or pop-up chat windows for quick inquiries.

Scientists require direct, often technical support due to the complexity of climate data and modelling. While their needs are typically more specialized, they acknowledge that some specific user questions might not be fully addressable. Nevertheless, a system of direct technical guidance and consultation is essential to maintain scientific rigor and usability. They appreciate the existence of personal support to navigate datasets and modelling tools effectively.

Journalists have relatively straightforward support expectations: primarily a single email contact through which they can reach out and, if necessary, arrange phone conversations. They value clear,

prompt and trustworthy communication channels that allow them to get assistance or clarifications quickly, ensuring they can accurately report on climate data and related issues.

4.2.5 Expectation on Communication of Information

Commercial service providers want timely updates on climate data and scenarios, including clear explanations of model strengths and weaknesses to help them decide which models fit their needs. They emphasize the importance of thorough documentation — not only of assessments but also of the people who prepared them, their purposes, and potential weak points — so knowledge remains intact even if employees leave. Clear and structured commentaries with standardized forms and data orientation are essential. Workshops with practical templates and feedback are valued, especially when combined with targeted communication on platforms like LinkedIn for specific sectors such as tourism. They stress transparency about data sources, use of climate scenarios as trustworthy future outlooks, and the need for simple, clear language to effectively reach broader audiences. In tourism, awareness of data availability has been low, so better interpretation aids and clearer distinctions between facts and forecasts are needed.

The public sector consistently highlights the need to translate complex scientific data into language accessible to end users and non-experts. Specialized articles are often too technical and must be simplified to promote understanding. They seek communication formats that visualize data effectively, such as overview maps, e-learning videos, and practical examples. Communicating uncertainty transparently and providing clear explanations for every parameter is important, as is addressing regional results specifically to improve local relevance. Communication strategies should also strike a balance between raising awareness and maintaining hope, reframing climate change as preserving an intact world rather than mere adaptation (“try to reframe it and use positive words … challenge is to give wakeup call while still also giving hope,”). Analogies—like temperature increases equated to geographical shifts (e.g. the future weather in Vienna will be like the weather in Zagreb now) or “rubber boot height” for rainfall (e.g. if it rains this much your rubber boots would be under water up to the ankle)—are powerful tools to help communities grasp abstract data. Users from the public sector emphasize integrating new climate scenarios into regional contexts with clear points of contact for further support. They also want better visibility of responsible organizations, so users know where to turn with questions.

Scientists recognize that adequately communicating validity and uncertainties is a major challenge. Their methodical approach—focusing on errors and uncertainty—can sometimes be misunderstood by the public as a lack of knowledge ("Scientific approach ... is easily perceived by the public as 'they don't know what they're talking about"). There is high demand for qualitative rather than purely quantitative statements, such as whether future extreme events will be worse than those already experienced. Most communication can rely on a few fundamental indicators to make general claims. Direct communication between scientists and the public is crucial; full automation of information delivery will likely fail. Scientists also stress the importance of providing simple, clear, and trustworthy messages that are consistent with scientific rigor.

Journalists expect relevant results to be communicated in the context of current events like floods or heatwaves, avoiding excessive alarmism while still conveying urgency. They rely on concise, understandable information that links climate data to real-world impacts, helping them report accurately and responsibly.

4.2.6 Structural conditions

Commercial service providers point to key regulatory frameworks like financial market supervision and the EU Sustainable Reporting Standards as drivers shaping climate risk assessments (and their data needs), especially for larger companies and sectors like tourism. They stress the need for standardized scientific criteria and reliable data sources to improve analysis consistency. Many lack internal resources for detailed mapping and rely on external contacts.

Public sector employees express frustration over slow political and social uptake of climate scenarios and with limited resources to generate or interpret data, particularly at regional and municipal levels. They highlight the urgent need for adaptation to rising extreme weather events but note challenges in funding innovative projects. They emphasize the need for integrating climate data into risk management and recognize the importance of regulations like the EU Taxonomy for guiding action. However, they see that political choices influence which scenarios are adopted, and therefore argue that official, ensemble-based data are crucial for legitimacy.

Scientists underline the necessity of a permanent institution to host and maintain climate data for long-term use.

4.3 Interviews with Non-Users

Besides the 20 interviews with ÖKS15 users, we also wanted to gather some insights from potential users that is users that currently are not using ÖKS15 but could. Naturally, information gathered from them was less exhaustive, therefore we summarise the main insights here interview by interview and not further separated.

The first interview was with an engineer specialized in planning data centres, where temperature developments and environmental risks are already critical factors. Especially rising outdoor temperatures increasingly challenge existing systems and also hazards such as flooding, strong winds, landslides, and smoke from wildfires are becoming more important. These risks are becoming more pressing and influence both site selection and the evaluation of existing sites.

So far, analyses have relied almost exclusively on current data sources, such as the national HORA database. Future-oriented projections have not been systematically used but will be used in future, since new data centre standards requiring consideration of climate scenarios. The company has only just started engaging with such scenarios, mainly via a TÜV Süd tool using datasets from Munich, but they lack experience with the underlying models and have not yet identified suitable local data.

The interviewee stressed that while trust in climate scenarios is growing, planning still depends largely on today's conditions. In practice, this means designing for outdoor temperatures up to 45°C to account for recent warming trends, but without embedding long-term projections into risk analyses. For the future, they would prefer site-specific climate data with clear parameters and visual trends that can be directly integrated into risk assessments.

The second interviewee is responsible for system development and long-term grid planning. A key concern is how future generation structures, especially from renewables, will affect system stability. For planning, the company currently uses weighted average weather years based on the past 35 years, simulated with hourly resolution. While this provides detailed insights, it is increasingly seen

as inadequate since past conditions are unlikely to represent the next decades. There is strong interest in moving towards climate-adjusted reference years, tailored to Austria's needs and compatible with existing models. Climate scenarios are therefore relevant but not yet systematically applied. Existing use has mostly been indirect, for example in studies on hydropower production, which suggested that shifting precipitation patterns could support winter generation. At the same time, the company experiences growing operational risks from extreme events—such as landslides, storms, and flooding—that highlight the need for more forward-looking data.

In an ideal setup, the interviewee emphasized the need for hourly climate data on temperature, wind, solar radiation, and river levels, which could be directly integrated into grid models and adequacy assessments.

Overall, while planning currently relies on historical datasets, there is clear recognition that future-oriented scenarios are necessary to account for shifting weather patterns, renewable integration, and evolving demand drivers such as data centres and electrification.

The third interviewee is a journalist who has specialized in environmental topics for about a decade, with a current focus on climate politics and the role of media in supporting effective policy action. Despite his claim not using climate-scenarios, his entry point into climate scenarios was early through the IPCC 2018 report. Institutional publications like CCCA reports, particularly those linking climate to health, have also shaped his engagement. Events such as heatwaves, climate summits, or Fridays for Future protests make the issue more tangible and easier to communicate to the public.

In daily work, the journalist relies on the ÖKS15 factsheets and also on institutional press releases. Because uncertainty is a constant challenge, trusted institutional sources are particularly valuable, often supplemented by targeted follow-up with recognized experts. For effective communication, information needs to be easily quotable, verifiable, and fact-checkable. Looking ahead, for him the ideal solution would be a search-based tool that delivers factually correct, directly quotable answers to specific questions, with clear traceability. Sector-specific, shareable information that connects climate scenarios to everyday life would be especially useful for journalistic work. However, technical branding such as "ÖKS" may present a barrier for media audiences due to its lack of accessibility.

4.4 Summary

The Austrian climate scenarios ÖKS15 are widely used across sectors for climate risk assessment and adaptation planning. Commercial service providers tailor data for sectors like forestry, agriculture, and tourism, especially in response to regulatory pressures like the CSRD. However, they see that especially smaller companies often struggle to apply and use the complex data and respond to the requirements. The public sector uses ÖKS15 to shape regional strategies and planning, particularly in regions with distinct challenges like alpine areas. They translate technical data into accessible formats and raise awareness among decision-makers and the public. Journalists serve as interpreters of scientific data for broader audiences, while scientists apply ÖKS15 in research on agriculture, tourism, and health impacts. Also those currently not using it (mainly because until now the rely on current and past weather data) show clear indications for a future use.

There is a shared demand for more precise, high-resolution, and locally relevant data. Commercial actors seek kilometre-scale indicators for hail, snow, and drought risk, but face barriers like high costs

and hardware limitations. Public actors need clear regional indicators like slope orientation, heat days, and water demand. Journalists prefer simplified metrics like precipitation trends, while scientists require detailed data on climate variability and sub-daily changes.

All groups call for easier access to data. Users find the current ÖKS platform confusing and suggest clearer labels, interactive maps, ready-made indicators, and better integration with GIS tools. Sector-specific dashboards and improved visualization are also requested. Support should be personal, practical, and easy to reach. Commercial users want independent quality assurance and training formats; the public sector and journalists prefer intuitive help and direct communication channels; scientists need specialized technical support.

Communication needs to improve across sectors. Users call for clearer messaging, accessible visuals, and explanations of uncertainty without causing alarm.

Finally, structural conditions like funding, political support, and institutional continuity are critical. While regulations drive demand, lack of capacity and long-term maintenance limit effective use. A permanent, well-supported platform is needed to ensure consistent, reliable access to ÖKS data for all users.

5. Discussion & Interpretation

The combined findings from the survey and interviews offer a comprehensive view of how professionals across sectors engage with climate scenario data, and what drives or hinders their usage of different formats.

5.1 Usage Patterns and Motivations

The survey-based regression analysis reveals distinct psychological drivers for the use of different scenario formats:

- **Raw data** shows the least influence of any drivers, probably, because there are no alternatives to using the data tailored to the Austrian context.
- **Graphical figures** are mainly adopted based on performance expectancy, when users believe the format is useful for their work.
- **Reports and factsheets** are used when they are seen as both useful and easy to use.

Regarding user groups the results reveal that all groups require solid data fitting for their purposes and criticise that this data, while available, is often difficult to find and that it requires additional effort to understand the ÖKS platform and the nomenclature. However, there are also some differences:

- **Commercial service providers** seek high-resolution, application-ready indicators but often lack the resources or capacity to work with complex data themselves.
- **The public sector** needs regionally specific, understandable visuals, reports, and indicators for planning and public communication.
- **Scientists** require detailed and technically robust data formats.
- **Journalists** need simplified, visual, and relatable representations to translate information to the public.

5.2 Barriers and Support Needs

A common theme in both data sources is that usability and support structures are essential for adoption:

- The survey shows that ease of use is crucial for text formats such as reports and factsheets.
- The interviews echo this, with widespread complaints about the ÖKS15 platform's complexity and demands for:
    - Clearer labelling,
    - User-friendly navigation,
    - Better visualizations,
    - Sector-specific dashboards,
    - Targeted training and help.
- Interviews with non-users show, that the main reason for this current non-use lie in the fact, that the professionals consider data based on the past as sufficient, but they acknowledge that that won't be the case in the future anymore.

Moreover, all sources stress the need for tailored approaches: different professional users require different formats, levels of detail, and support services.

5.3 Recommandations for future Austrian Climate Services

The evidence strongly supports that the p**rovision of reliable and (scientifically) sound data and analysis** (as done in ÖKS15), ideally based on a GIS-format, remains top priority for all user groups and should therefore be top priority also for future Austrian Climate services. If this is achieved, a more **segmented and user-oriented strategy** might increase user acceptance and satisfaction:

- For **graphical formats**, emphasize **practical value** by integrating application examples, case studies, and editable visuals.
- For **text-based formats**, focus on **clarity and ease**—provide clear takeaways, structured content, and visual aids. Special analysis not only for regions but also for sector-specific aspects (e.g. aspects relevant for tourism) might be appreciated.

From the interviews, this needs to be accompanied by:

- **Sector-specific entry points and tools** (dashboards, indicator filters),
- **Improved communication** (better storytelling, uncertainty handling),
- **Stronger facilitation** (training, technical support),
- S**tructural stability** (institutional anchoring, adaptation to national or supra-national reporting duties).

5.4 Takeaways

All in all, we can conclude, that the ÖKS15 are seen as a useful tool, especially with regards to its credibility and data quality, but improvement potential is seen in accessibility and ease of use.

We can further derive that a one-size-fits-all solution probably does not work. For all developed solutions, the target audience should be taken into account and the materials tailored for their necessities.

For raw data a higher spatial and timely resolution would be appreciated as well as an easy way to navigate the data. Among all user groups an interactive map that gives more information for the selected region, as well as advice where to find raw data and further connected materials would be highly appreciated. Especially for the group working with raw-data itself, a peer-to-peer exchange platform could be a good idea. A special emphasis could also be given on providing indicators necessary for reporting obligations stemming from national and European regulations. Further improvement suggestions are of more technical nature, for example it would be appreciated if data series spanning across years would be available (to allow for example for analysis based on seasons) and that data is not cut sharply at the Austrian borders.

For graphical analysis a focus should be given on easy accessibility and understandability also for people not involved deeply in the topic. Further appreciated would be easily understandable explanations of all indicators combined with practical examples what it means (e.g. an increase of the average temperature of 1.5 degrees would mean that we have climate as a region has it now 500 kilometres further south).

For reports and fact sheets it would be appreciated, if materials, besides the current regional analysis, that are well received, focus specifically on the requirements coming from specific (commercial) sectors like tourism or the insurance sector.

For the development of the next generation of Austrian climate scenarios, the question arises to what extent klimaszenarien.AT can cover all requirements and how the initiative defines its own role. This refers to which tasks and activities can/should be provided by public institutions and organisations and which by private actors as well as who should have the ability and the authority to take which actions and make which statements.

Appendix

List of interviewees:

Interview-Nr.	Function	Professional group
1	Representative Insurance Company	Commercial Service Provider
2	Representative Federal Environmental Agency (UBA)	Public Sector
3	Management Consultant	Commercial Service Provider
4	Management Consultant	Commercial Service Provider
5	Representative Austrian Agency for Health and Food Safety	Public Sector
6	Representative Federal Energy Agency	Public Sector
7	Management Consultant	Commercial Service Provider
8	Specialist for sustainability in the Austrian railway company	Public Sector
9	Climate Service Specialist	Scientist
10	Civil servant in the Environmental Protection Department of an Austrian Province	Public Sector
11	Public Energy, mobility and environmental consulter	Public Sector
12	Head of Sustainability for a municipal infrastructure service provider	Public Sector
13	Tourist company advisor	Commercial Service Provider
14	Journalist	Journalist
15	Public Servant Urban Climate and Environment for an Austrian city	Public Sector
16	Climate Change Adaption Project Manager for Spatial Planning and Housing department of an Austrian city	Public Sector
17	Management Consultant	Commercial Service Provider
18	Head of Urban Climatology and Environment Department of an Austrian City	Public Sector
19	Climate Adaptation Manager for an Austrian Region	Public Sector
20	Climate Protection Coordinator for an Austrian Region	Public Sector
NU1	Engineer for data centers	Commercial Service Provider
NU2	Engineer for grid development	Public Sector
NU3	Journalist	Journalist

TABLE 5: PROFESSION OF INTERVIEW PARTNERS:

Interview- Guidelines (in German):

Interview-Leitfaden (Non-)User von ÖKS15

Hinweise für Interviewer:innen

- Die mit [Users] versehenen Fragen sind nur Usern zu stellen
- **Leitfragen müssen** gestellt werden
- **Vertiefungsfragen können** gestellt werden und dienen als Orientierung, worauf wir mit Leitfragen hinauswollen
- Formulierungen verstehen sich als Vorschläge
- Reihenfolge dient der Orientierung und ist auf Gesprächsfluss abzustimmen

Begrüßung und Einstieg

1. Begrüßung und Dank für das Zeitnehmen
2. Hinweis auf Aufzeichnung und Nutzung lt. unterschriebener Datenschutzerklärung
3. [Aufzeichnung einschalten]
4. Kurze Infos zum Projekt (ohne taktisches Antwortverhalten zu triggern)

Einleitung und persönliches Kennenlernen von ÖKS

[ALLE] Leitfrage persönliche Einordnung

Beginnen wir mit ihrem allgemeinen persönlichen ihrem persönlichen Eindruck von den österreichischen Klimaszenarien. Aus unserer vorangegangenen Fragebogen-Erhebung wissen wir:

Es gibt ein breites Spektrum, bei dem auf der einen Seite richtige "Fans" der Klimaszenarien zu finden sind, und auf der anderen Seite Menschen, die in den Klimaszenarien in der bisherigen Form keinen Nutzen sehen. Wo würden sie sich da verorten? Eher bei den Fans, eher bei den Pessimist:innen oder in der Mitte?

[ALLE] Leitfrage Kennenlernen und ÖKS15

Wenn sie auf ihre persönlichen Erfahrungen mit den ÖKS zurückblicken. Wann haben sie erstmals von den ÖKS erfahren? Zeitpunkt Kennenlernen von ÖKS (ergänzend: Gezielte Suche oder Zufallsfund?)

- Haben sie die ÖKS durch eine gezielte Suche gefunden, oder war es ein Zufallsfund?
- Wenn sie an den Zeitraum zurückdenken, in dem sie erstmals von den ÖKS erfahren haben – gab es da irgendwelche konkreten Ereignisse, durch die Klimaszenarien für sie an Relevanz gewonnen haben?
- [Wenn ja] Inwiefern hat [Ereignis] für sie die Relevanz von Klimaszenarien verändert/erhöht?

[Non-Users] Leitfrage Nichtnutzung

Sie sind damals auf die ÖKS gestoßen, haben sie aber letztendlich nicht genutzt. Können sie mir ein bisschen über die Gründe verraten, warum sie sie nicht genutzt haben?

- Haben sie nachdem sie von ÖKS erfahren haben, andere Quellen verwendet, um Informationen über Klimaszenarien zu erhalten?

[USERS und Power-USERS] Leitfrage Erste Nutzung

Wann haben sie die ÖKS zum ersten Mal selbst genutzt?

- Wenn sie an ihre ersten Anlassfälle für die Nutzung und ihre ersten Erfahrungen denken – wie leicht haben sie da in die Nutzung hineingewachsen? Gab es dabei Hürden?
- [Wenn ja] Sprechen wir vielleicht etwas genauer über die genannten Hürden. Wie haben sie diese dann überwunden?

Eigene Use-Cases

[USERS und Power-USERS] Leitfrage eigene Use-Cases

Wofür haben sie die ÖKS bisher selbst genutzt?

- Haben sie unter Verwendung der ÖKS schon einmal eigene Produkte oder Services erstellt bzw. Angeboten?
-

[ALLE] Leitfrage Benötigte Informationen Welche Informationen benötigen sie aktuell und welche werden sie in Zukunft voraussichtlich benötigen?

- Welche Antworten können sie mit den aktuell genutzten Informationen generieren?
- Welche Antworten werden sie mit den zukünftig benötigten Informationen generieren?

[ALLE] Leitfrage andere Quellen/Produkte

Welche anderen Quellen/Produkte nutzen sie, um die Informationen zu erhalten, die sie benötigen?

Qualitätsempfinden und Probleme

[ALLE] Leitfrage Qualitätsempfinden

Sprechen wir jetzt etwas genauer über ihr Qualitätsempfinden bei den österreichischen Klimaszenarien. Was ist ihr Gesamteindruck und gibt es konkrete Punkte, bei denen es ihnen besonders wichtig ist, sie zu erwähnen?

- Wenn sie möchten, können sie ihren Bildschirm teilen und zeigen, wo sie konkreten Verbesserungsbedarf sehen.
- Wie einfach empfinden sie es, mit den bereitgestellten Formaten zu arbeiten?
- [Wenn bei Use Cases noch nicht abgedeckt] Welche Indikatoren nutzen bzw. Brauchen sie? Detail-Aspekte zum Nachhaken:
- Wie einfach empfinden sie es, sich im Angebot zurechtzufinden?
- Wie gut konnten sie den Zweck der bereitgestellten Formate und Daten nachvollziehen?
- Wie zufrieden waren sie mit der Datenqualität (Auflösung, Inhalt, Quellen, Unsicherheiten, Nachvollziehbarkeit, ...)?
- Passen die bereitgestellten Indikatoren mit ihren Fragestellungen zusammen?
- Wie zufrieden waren sie mit den interaktiven visuellen Aspekten, wie z.B. Anpassen, Filtern, Färben etc.? (Visualisierung)
- Wie bewerten sie die Zugänglichkeit der verfügbaren Daten und Formate?
-

[ALLE] Leitfrage Erwartungen an einen Support

Wenn sie an ihre Erfahrungen mit den österreichischen Klimaszenarien denken, hätten sie sich Unterstützung durch einen telefonischen oder Chat-Support gewünscht?

- Welche konkreten Erwartungen hätten sie an einen Support?

Verbesserungsvorschläge ("Ideale Welt")

[ALLE] Leitfrage Ideale Welt

Wenn sie an die von ihnen wahrgenommenen Probleme denken, wie würde die Lösung dafür in einer "Idealen Welt" aussehen? Ignorieren sie einfach die Kosten und technische Machbarkeit ihrer Ideen.

- Wie würde die Orientierung durch die bereitgestellten Daten und Formate aussehen?
- Welche Ideen hätten sie für die visuelle Darstellung?

Fazit

[ALLE] Leitfrage Gesamteindruck

Mit Blick auf ihren Gesamteindruck von den österreichischen Klimaszenarien, wie würden sie ihre Gesamtzufriedenheit auf einer Skala von 1 (sehr unzufrieden) bis 10 (sehr zufrieden) bewerten?

- Wenn sie den Aufwand für die Nutzung der Klimaszenarien mit dem Nutzen gegenüberstellen, wie sieht dann das Preis-/Leistungs-Verhältnis aus?

Abschluss

1. Dank für das ausführliche Gespräch und die spannenden Einblicke
2. Wenn passend: Hinweis auf Möglichkeiten für weiteren Austausch

Questionnaire Flow (In German)

Diese Umfrage erfolgt im Rahmen des ACRP-Projekts Use.AT

Es gibt immer mehr Klimaservices, die sich damit auseinandersetzen, wie sich das Klima in Zukunft verändern wird, und die damit Nutzer:innen eine Entscheidungs- und Planungsgrundlage bieten wollen. Aber sind diese Services wirklich nutzer:innenfreundlich, nützlich und praktikabel?

Mit dem Projekt Use.AT (gefördert durch den Klima- und Energiefonds) stellen wir die Nutzer:innen ins Zentrum: Wir wollen wissen, wie Klimaservices und –produkte so verbessert werden können, dass sie nachfrageorientiert, benutzerzentriert und leicht nutzbar sind, um Entscheidungsprozesse optimal zu unterstützen.

Dafür möchten wir gerne von Ihnen lernen: Welche Klimadaten, Formate und Produkte brauchen Sie?

Wir freuen uns über einen Einblick in Ihre Bedürfnisse!

[Datenschutz-Richtlinie und DSGVO-Hinweis, Aktiver Informed Consent]

User-Typ

In welcher Branche sind Sie tätig?

a. Wissenschaft
b. Öffentliche Verwaltung
c. NGOs, Vereine, Verbände, Sozialpartner
d. Versicherungen
e. Banken/Finanzdienstleister
f. Sonstige öffentliche Institution
g. Sonstiges privatwirtschaftliches Unternehmen

Alter

Bitte wählen Sie die für Sie zutreffende Alterskategorie.

o unter 18
o 18-24
o 25-34
o 35-44
o 45-54
o 55-64
o 65 und darüber

Geschlecht

Bitte wählen Sie das für Sie am ehesten zutreffende Geschlecht.

o männlich
o weiblich
o divers

Kurzvorstellung der ÖKS15

Die Österreichischen Klimaszenarien aus dem Jahr 2015 (ÖKS15) sind ein frei zugänglicher Datensatz zum Klimawandel in Österreich. Bei der Entwicklung wurde sowohl auf hohe räumliche (1 x 1 km) sowie zeitliche (täglich) Auflösung, auf eine langfristige Perspektive (bis 2100), verschiedene Annahmen zu Emissionen (drei Szenarien), und eine möglichst gute Abdeckung der lokalen Klimavariabilität (über 30 Einzelmodelle) Wert gelegt.

Mitsamt den daraus abgeleiteten Analysen geben die ÖKS15 einen Überblick über die Auswirkungen des Klimawandels in Österreich und stellen eine Basis für weitere Detailstudien, Produkte und Services dar, die über das Climate Change Centre Austria (CCCA) kostenlos zur Verfügung steht.

Die verschiedenen Produkte umfassen dabei:

- **Datensätze**
- **Grafische Darstellungen** (z.B. kommentierte Klimafolgen-Karten für Österreichs Regionen, wie aus dem Projekt CLIMA-MAP)
- **Berichte und Factsheets** (z.B. Bundesländer-Factsheets)

Filterfragen

Kennen Sie eines der hier gezeigten Angebote?

o Ja

o Nein [=> Block PU "Potential Users"]

Wie haben Sie von den österreichischen Klimaszenarien erfahren?

o Persönliche Empfehlung von KollegInnen oder ProjektpartnerInnen

o Pressemeldung

o Hinweis durch Vorgesetzte/n

o Referenz in wissenschaftlicher Publikation

o Konferenz

o Newsletter

o Sonstiges nämlich _____

Wie häufig haben Sie die folgenden Formate der österreichischen Klimaszenarien bisher in ihrer Arbeit genutzt?

	nie – selten – manchmal – oft - immer				
	1	2	3	4	5
Datensätze (z.B. Rohdaten)					
Grafische Darstellungen (z.B. Klimafolgen-Karten für Österreichs Regionen)					
Berichte und Factsheets (z.B. Bundesländer-Factsheets)					

Bisherige Nutzungsart

Wofür haben Sie die österreichischen Klimaszenarien bisher genutzt?

o Rasches Erkennen möglicher Gefahrenzonen (Screening)
o Vergleich von Regionen
o Veranschaulichen von Klimagefahren für Bürger:innen
o Veranschaulichen von Klimagefahren für Entscheidungsträger:innen
o Problemdarstellung in Strategiedokumenten
o Datengrundlage für konkrete Planungen und kurzfristige Berechnungen
o Datengrundlage für Modellierung und langfristige Prognosen
o Interaktives „Herumspielen“ mit Daten
o Sonstiges, nämlich: _____

o Risikoabschätzung bei Investments
o Risikoabschätzung bei Projekten
o Bewusstseinsbildung

Wenn sich die folgenden Fragen allgemein auf die "österreichischen Klimaszenarien" beziehen, dann beantworten Sie bitte diese Fragen für jene Formate, die Sie persönlich nutzen.

Bitte denken Sie nun an Ihre Erfahrungen mit den österreichischen Klimaszenarien. Wählen Sie jeweils jene Antwort aus, die am besten zutrifft.

	Stimme überhaupt nicht zu						Stimme völlig zu
	1	2	3	4	5	~~6~~	~~7~~
Die österreichischen Klimaszenarien sind nützlich für meine beruflichen Aufgaben.							
Ich finde es einfach zu verstehen, wie ich mit den österreichischen Klimaszenarien arbeiten kann.							
Menschen, mit denen ich zusammenarbeite, sind der Meinung, dass ich die österreichischen Klimaszenarien nutzen sollte.							

Die Berichte und Factsheets der österreichischen Klimaszenarien passen gut zu anderen Materialien, die ich nutze.							
Ich mag es, die österreichischen Klimaszenarien zu verwenden.							
Ich habe die Absicht, (weiterhin) mit den österreichischen Klimaszenarien zu arbeiten.							
Ich kann Hilfestellung von anderen bekommen, wenn ich mit der Nutzung der österreichischen Klimaszenarien Schwierigkeiten habe.							
Die Daten der österreichischen Klimaszenarien sind klar und verständlich.							
Mit den Daten der österreichischen Klimaszenarien kann ich genauere Planungen und Berechnungen erstellen.							
Menschen, die meine Arbeit bewerten, sind der Meinung, dass ich die österreichischen Klimaszenarien nutzen sollte.							
Ich verwende die österreichischen Klimaszenarien ohne darüber nachzudenken.							
Mit den grafischen Darstellungen der österreichischen Klimaszenarien kann ich die Folgen des Klimawandels besser verdeutlichen.							
Ich habe/hatte ausreichend Arbeitsstunden zur Verfügung, um mich in die österreichischen Klimaszenarien einzuarbeiten.							
Mit den Berichten und Factsheets der österreichischen Klimaszenarien kann ich die Folgen des Klimawandels besser verdeutlichen.							
Menschen in einer ähnlichen Position wie ich arbeiten mit den österreichischen Klimaszenarien.							
Alles in allem bin ich mit den österreichischen Klimaszenarien sehr zufrieden.							

Wann haben Sie zum ersten Mal von den österreichischen Klimaszenarien erfahren? Wenn Sie unsicher sind, geben Sie bitte einen ungefähren Zeitraum an.

[Dropdown Jahreszahlen] // [Textfeld]

Wann haben Sie zum ersten Mal mit den österreichischen Klimaszenarien gearbeitet? Wenn Sie unsicher sind, geben Sie bitte einen ungefähren Zeitraum an.

[Dropdown Jahreszahlen] // [Textfeld]

Bei wie vielen Gelegenheiten haben Sie bisher die österreichischen Klimaszenarien verwendet?

o Noch nie (Kontrollfrage)

o Ein Mal

o Einige Male

o Regelmäßig

Bitte denken Sie nun wieder an Ihre Erfahrungen mit den österreichischen Klimaszenarien. Wählen Sie jeweils jene Antwort aus, die am besten zutrifft.

	Stimme überhaupt nicht zu						Stimme völlig zu
Text	1	2	3	4	5	~~6~~	~~7~~
Die österreichischen Klimaszenarien helfen mir dabei, Aufgaben besser zu erledigen.							
Die österreichischen Klimaszenarien sind einfach zu verwenden.							
Menschen, die mir vorgesetzt bzw. übergeordnet sind, berücksichtigen die österreichischen Klimaszenarien.							
Ich möchte die österreichischen Klimaszenarien in Zukunft (weiterhin) verwenden.							
Die Daten der österreichischen Klimaszenarien helfen mir, zukünftige Risiken besser abzuschätzen.							
Ich habe bereits überlegt, andere Quellen (Daten, Berichte und Factsheets, grafische Darstellungen) anstelle der österreichischen Klimaszenarien zu verwenden.							
Ich mache mir in meiner Arbeit keine Gedanken, ob ich auf die österreichischen Klimaszenarien verzichten könnte.							
Mit den Berichten und Factsheets der österreichischen Klimaszenarien kann ich genauer planen.							
Ich kann mich leicht mit den österreichischen Klimaszenarien vertraut machen.							
Die Daten der österreichischen Klimaszenarien sind kompatibel zu anderen Daten und Anwendungen, die ich nutze.							
Menschen mit einem ähnlichen Aufgabenbereich wie ich verwenden die österreichischen Klimaszenarien.							
Die Berichte und Factsheets der österreichischen Klimaszenarien sind klar und verständlich.							
Es ist unterhaltsam, mit den österreichischen Klimaszenarien zu arbeiten.							
Ich habe das nötige Wissen über Klimaprozesse, um die österreichischen Klimaszenarien zu nutzen.							
Die grafischen Darstellungen der österreichischen Klimaszenarien helfen mir, zukünftige Risiken besser abzuschätzen.							
Menschen, die über meine Arbeit bestimmen, meinen ich sollte mit den österreichischen Klimaszenarien arbeiten.							
Ich würde die österreichischen Klimaszenarien weiterempfehlen.							

Wie häufig werden Sie die folgenden Formate der österreichischen Klimaszenarien in Zukunft voraussichtlich nutzen?

	nie – selten – manchmal – oft - immer				
	1	2	3	4	5
Datensätze					
Grafische Darstellungen (z.B. Klimafolgen-Karten für Österreichs Regionen)					
Berichte und Factsheets (z.B. Bundesländer-Factsheets)					

Bitte denken Sie nun wieder an Ihre Erfahrungen mit den österreichischen Klimaszenarien. Wählen Sie jeweils jene Antwort aus, die am besten zutrifft.

	Stimme nicht zu				Stimme zu		
	1	2	3	4	5	~~6~~	~~7~~
Das Verwenden der österreichischen Klimaszenarien steigert die Qualität meiner Arbeit.							
Die Berichte und Factsheets der österreichischen Klimaszenarien helfen mir, zukünftige Risiken besser abzuschätzen.							
Menschen, die meine Arbeitsweise vorgeben, verwenden die österreichischen Klimaszenarien.							
Ich habe die nötigen IT Kenntnisse, um die österreichischen Klimaszenarien zu nutzen.							
Die Nutzung der österreichischen Klimaszenarien ist für mich zur Gewohnheit geworden.							
Es macht Spaß, die österreichischen Klimaszenarien zu nutzen.							
Ich plane, die österreichischen Klimaszenarien (weiterhin) regelmäßig einzusetzen.							
Bei den österreichischen Klimaszenarien steht mein Aufwand in einem guten Verhältnis zu meinem Nutzen.							
Ich habe die nötige Software, um die österreichischen Klimaszenarien zu nutzen.							
Die grafischen Darstellungen der österreichischen Klimaszenarien sind klar und verständlich.							
Menschen, mit denen ich mich regelmäßig austausche, meinen ich sollte die österreichischen Klimaszenarien einsetzen.							
Ich kann jemanden um Rat fragen, wenn ich mit der Nutzung der österreichischen Klimaszenarien Schwierigkeiten habe.							

Welche Arten der Aufbereitung von Klimaszenarien benötigen Sie?

o Berichte, Factsheets (pdf, etc.)
o Tabellen (csv, excel, etc.)
o Bilder (jpeg, png, etc.)
o WebMaps (z.B. CLIMA-MAPS)
o Dashboards (z.B. GIS Steierark)
o Raster Files (tiff, NetCDF, grb, etc.)
o Sonstiges, nämlich _____

Auf welchen Plattformen sollten die Daten der österreichischen Klimaszenarien verfügbar sein?

o Direkt von einer eigenen Website downloadbar
o Interaktiver Atlas wie IPCC oder IIASA
o GLOBUS transfer (www.globus.org/data-transfer)
o GeoSphere Data Hub
o Open goverment data (data.gv.at)
o Open Data Plattform (wie Zenodo oder Dryad)
o Sonstiges, nämlich _____

Hemmnisse für die Nutzung

Welche Schwierigkeiten haben Sie bei der Nutzung der österreichischen Klimaszenarien in Bezug auf die bereitgestellten **Daten**?

o Ich weiß nicht, wo ich die Daten finden kann.
o Ich kann mit dem Format der Daten nicht arbeiten.
o Ich bin mit dem Umfang der Daten überfordert.
o Es fällt mir schwer, die thematisch richtigen Datensätze für meine Anwendung auszuwählen.

o Weitere Schwierigkeiten, und zwar: _____
o Ich habe mit den bereitgestellten Daten keine Schwierigkeiten.

Welche Schwierigkeiten haben Sie bei der Nutzung der österreichischen Klimaszenarien in Bezug auf die **Beschreibung und Dokumentation** (Handbücher, Dokumentation, Berichte)?

o Sie sind mir zu kompliziert.
o Sie sind unvollständig.
o Sie sind sprachlich nicht ansprechend.
o Sie sind nicht vorhanden oder nicht auffindbar.
o Es fällt mir schwer, die thematisch richtigen Beschreibungen für meine Anwendung auszuwählen.
o Weitere Schwierigkeiten, und zwar: _____
o Ich habe mit den bereitgestellten Dokumenten keine Schwierigkeiten.

Welche Schwierigkeiten haben Sie bei der Nutzung der österreichischen Klimaszenarien in Bezug auf die verfügbaren **grafischen Darstellungen**?

o Sie sind mir zu kompliziert
o Sie sind unvollständig
o Sie sind optisch nicht ansprechend
o Sie sind nicht vorhanden oder nicht auffindbar
o Es fällt mir schwer, die thematisch richtigen grafischen Darstellungen für meine Anwendung auszuwählen
o Weitere Schwierigkeiten, und zwar: _____
o Ich habe mit den bereitgestellten grafischen Darstellungen keine Schwierigkeiten.

Alternativen zu ÖKS

ALT – Welche anderen Tools, Datenquellen oder Services nutzen Sie neben den österreichischen Klimaszenarien noch? (Denken Sie an Online-Tools, Berichte europäischer Organisationen, regelmäßige wissenschaftliche Publikationen etc.)

[Freitext]

Verbesserungspotential offen

Was würden Sie sich mit Blick auf die österreichischen Klimaszenarien wünschen, wenn Kosten und technische Grenzen keine Rolle spielen würden?

[Langes Freitextfeld]

Schluss-Message

Wir bedanken uns für Ihre Teilnahme!