



Exemplary evaluation of a climate service product

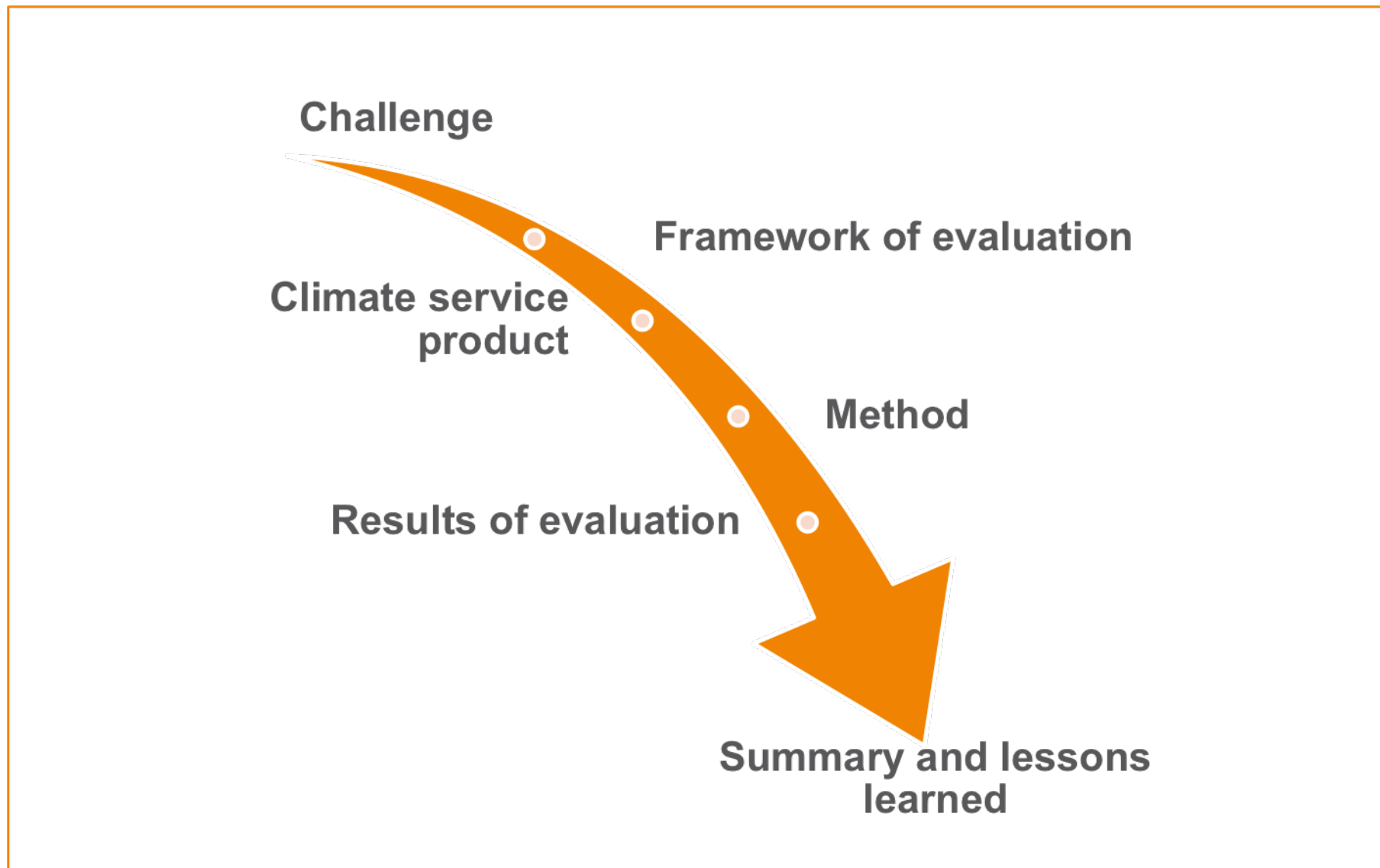
Elke Keup-Thiel and Susanne Schuck-Zöller

**Climate Service Center Germany (GERICS)
Helmholtz-Zentrum Geesthacht
Germany**

EMS 2018, 4.9.2018, Budapest, Hungary



Structure of the talk





Challenge

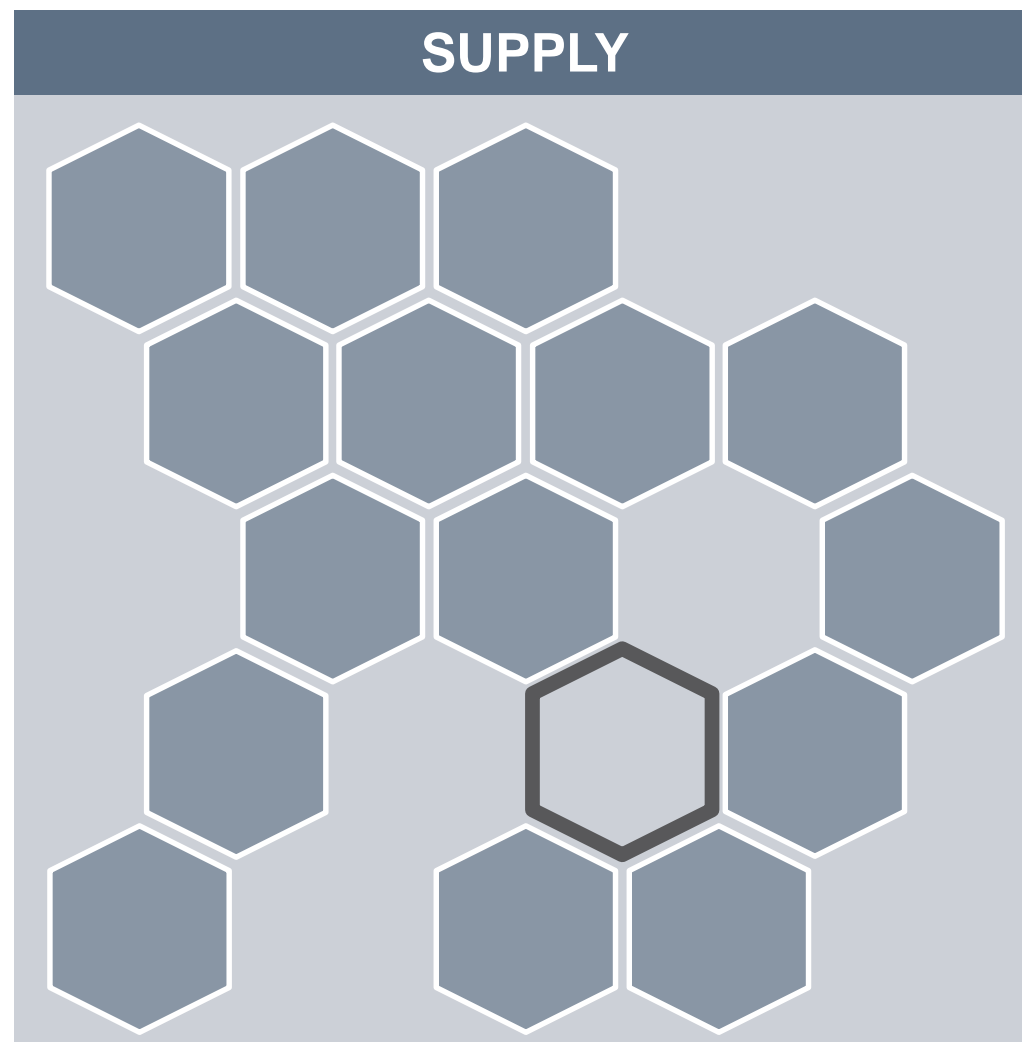
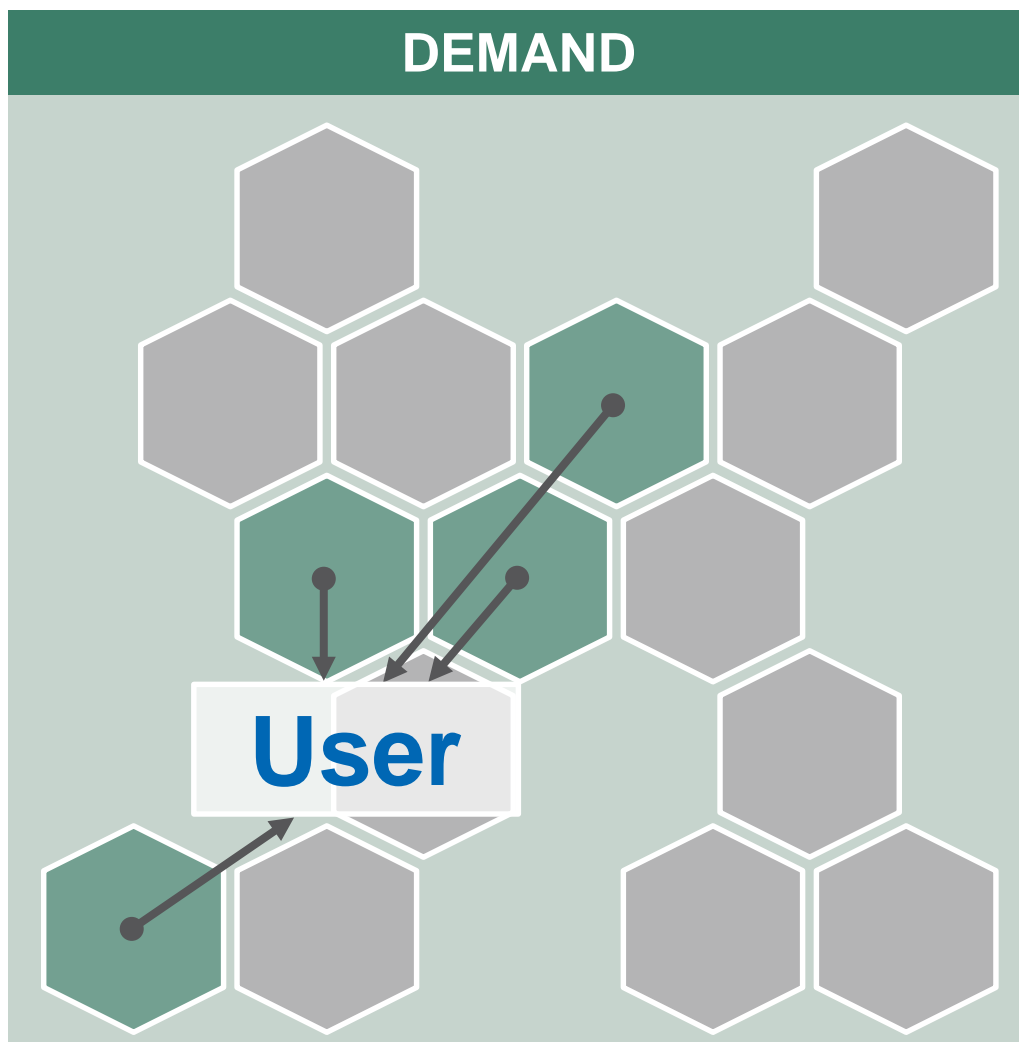
„The development of climate services (...) requires a transdisciplinary approach of co-design, co-development and co-evaluation“

European Commission (2015): Roadmap for Climate Services

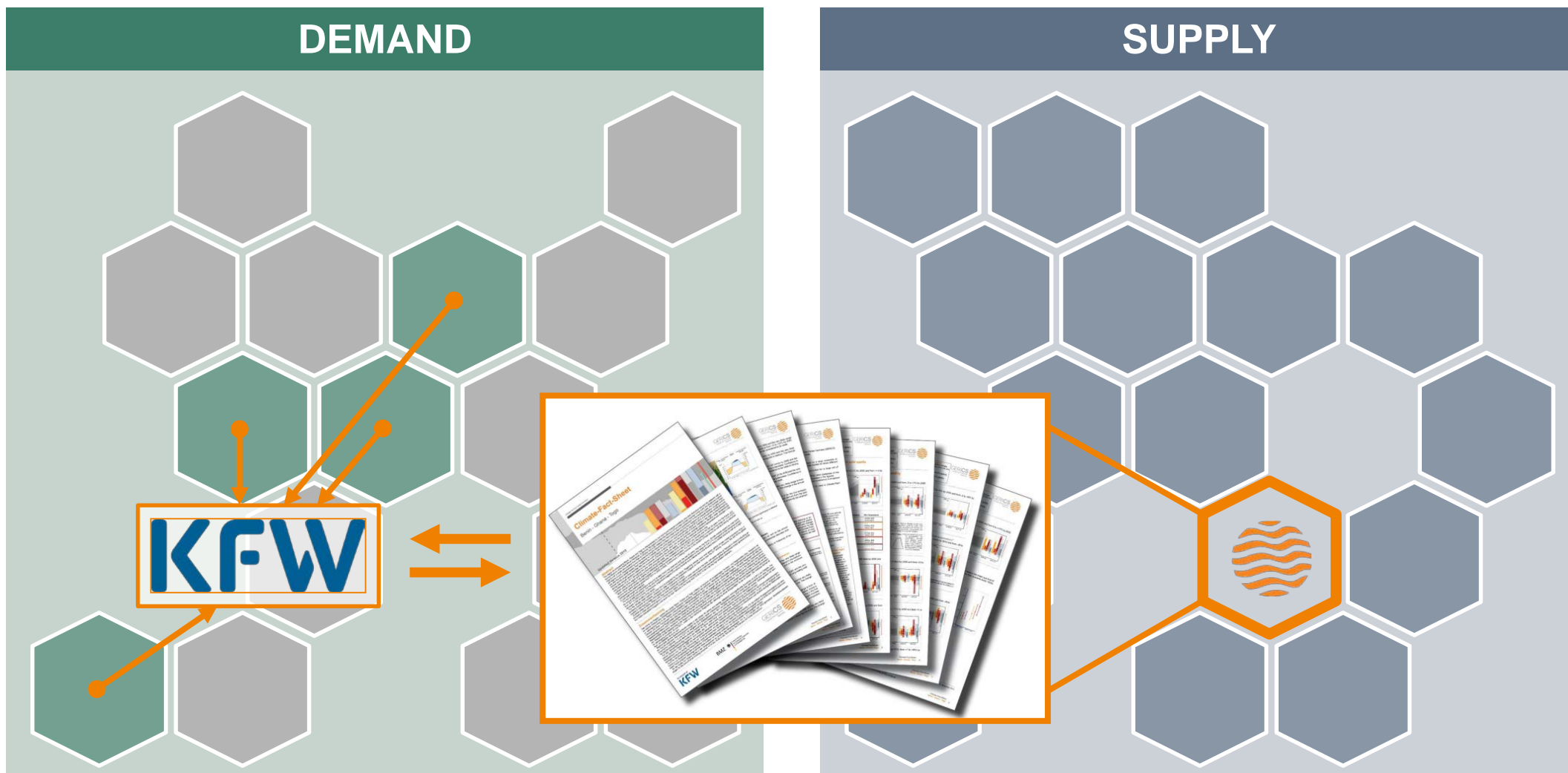
Science and practice have to be brought together to enhance successful knowledge transfer and dialogue processes:

- These scientific products are to be developed according to user needs
- Transdisciplinary processes need an evaluation to assure scientific quality of the product

Challenge: Climate service products are bridging demand and supply



Challenge: Climate service products are bridging demand and supply



Framework of evaluation: OECD - Definitions

- Elaboration of criteria and indicators for **outputs and outcome** (OECD¹)

Input

Process

Outputs

Outcome

Impacts

Input: resources for a development of product

Process: development of project

Outputs: product or result

Outcome: short-term effect with target group of a product

Impacts: long-term and societal effect of a product or result

1: OECD = Organisation for Economic Co-operation and Development

Framework of evaluation: criteria

- Elaboration of criteria and indicators for **outputs and outcome** (OECD¹)

Input

Process

Outputs

Outcome

Impacts

Outputs – criteria : availability, visibility, scientific and methodological quality, degree of innovation, scaling, practical relevance, strategic potential

Outcome – criteria: use, satisfaction, dissemination, user's learning effect, valorisation

1: OECD = Organisation for Economic Co-operation and Development

Framework of evaluation: previous activities

Framework for the evaluation of climate service and knowledge transfer products within climate and coastal services:

- Developed within the interdisciplinary PACES working group of the Helmholtz association “Earth and Environment”
- Used for the internal evaluation of a GERICS climate service product, the Climate-Fact-Sheets
- 12 criteria and 57 indicators to evaluate products and projects
- Selection of criteria and indicators regarding the target and character of the product or project

Logos: AVI, Alfred-Wegener-Institut, Helmholtz-Zentrum Geesthacht, GERICS Climate Service Center Germany.

Towards a framework for the evaluation of climate service and knowledge transfer products within climate and coastal research

Susanne Schuck-Zölzer¹, Elke Keup-Thiele¹, Holger Bräse¹, Christian Buschbaum², Jörg Cortekar¹, Christiane Eschenbach³, Irene Fischer-Bruns¹, Stephan Frickenhaus¹, Klaus Groschke¹, Lars Gutow¹, Wolfgang Hiller¹, Daniela Jacob¹, Gesche Krause¹, Elke Meyer¹, Insa Meiske¹, Lars Nierger¹, Diana Reichel¹, Corinna Schrum¹, Johannes Schütz-Stellenfleiter¹, Emil Stanev¹, Renate Trellier¹

Definition
In 2016 the German “Wissenschaften” (Council of Science and Humanities) broadened the meaning of the term “knowledge transfer” by including processes of interdisciplinary research and thus overarching unidirectional as well as bidirectional transfer activities.

Working group within Helmholtz Association (Earth and Environment, PACES II)
To develop criteria for evaluation and respective indicators, appropriate to evaluate knowledge transfer and dialogue processes with stakeholders as well as climate and coastal service activities, scientists of various disciplines within Research topic 4 (Bridging Research and Society) worked together. They came from the Institute for Coastal Research and the Climate Service Center Germany (both Helmholtz-Zentrum Geesthacht) and the Alfred Wegener Institute Bremerhaven.

Objects of evaluation
Every phase of project management can be an object of evaluation.

Criteria and indicators for output (preliminary version)

Criterion	Indicator
Availability	<ul style="list-style-type: none"> Accessibility Media responsibility Easiness Support for downloads
Visibility, dissemination in target groups	<ul style="list-style-type: none"> Publications Events and presentations Information (material) on product Public relations material and activities
Scientific quality, methodological quality	<ul style="list-style-type: none"> Quality of data Graphic design Level of language Up-to-date Completeness Editor Transparency Reflexivity Reliability Quality assurance (internal/external)
Degree of innovation	<ul style="list-style-type: none"> Originality
Scaling	<ul style="list-style-type: none"> Breadth and depth of product
Practical relevance	<ul style="list-style-type: none"> Coverage of target group Achievement of purpose Usefulness Usability Navigation Usability Permanent improvement Rights of use
Strategic potential	<ul style="list-style-type: none"> Potential for transfer Potential for societal transformation Strategy for further development

Criteria and indicators for outcome (preliminary version)

Criterion	Indicator
Use	<ul style="list-style-type: none"> Breadth of use Depth of use Frequency and duration of use Suitability for target group Relevance Applicability for education
Satisfaction	<ul style="list-style-type: none"> Comprehensibility Target achievement Users' appreciation Perception of being up-to-date Estimation of usability Identification with product
Dissemination, attention	<ul style="list-style-type: none"> Quotations/references Degree of recognition Intensity of perception Multipplier effects Awards Indirect effects
Users' learning effects	<ul style="list-style-type: none"> Degree of innovation Improvement of expertise Scientific connectivity Societal transformation capability
Validation	<ul style="list-style-type: none"> Licensing Operationalisation Transferability

Summary of the working group discussions

- A first preliminary framework for evaluation could be designed
- It is possible to standardize the criteria for evaluation across different research fields
- Evaluating impact is difficult and needs accompanying research
- It should be possible to evaluate results qualitatively and quantitatively
- Describing results by narratives („story telling“) might give an overall impression and a better interpretation
- Every evaluation is led by the objectives of the product or project. They might have changed during the process of development
- For every product or project the weight of the criteria has to be adapted and an individual set of indicators is to be chosen

Outlook

- Enhance networking on this issue within whole Helmholtz Association
- Promote definition of clear project objectives and respective evaluation criteria already with application for funding
- Develop criteria to evaluate the process of the product/project development and care for continuous monitoring

References:

- OECD (2002): Summary of key terms in evaluation and results based management. <http://www.oecd.org/dataoecd/11/42/274884.pdf>, last access: 10 July 2018
- Wissenschaften (2016): Wissen und Technologie für alle. Organigramm Institut für Transferstrategien

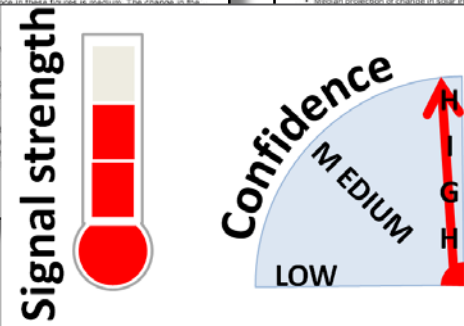
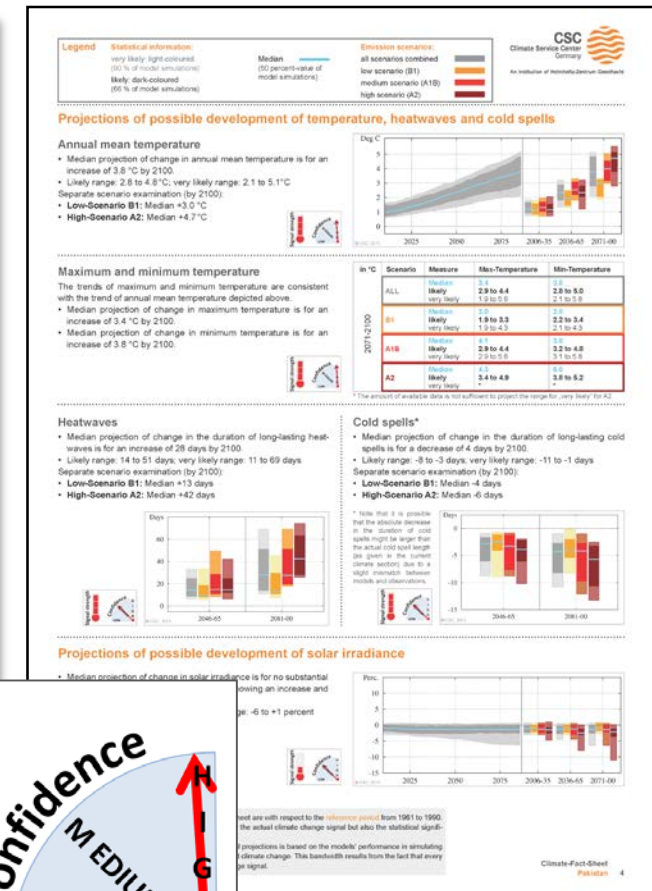
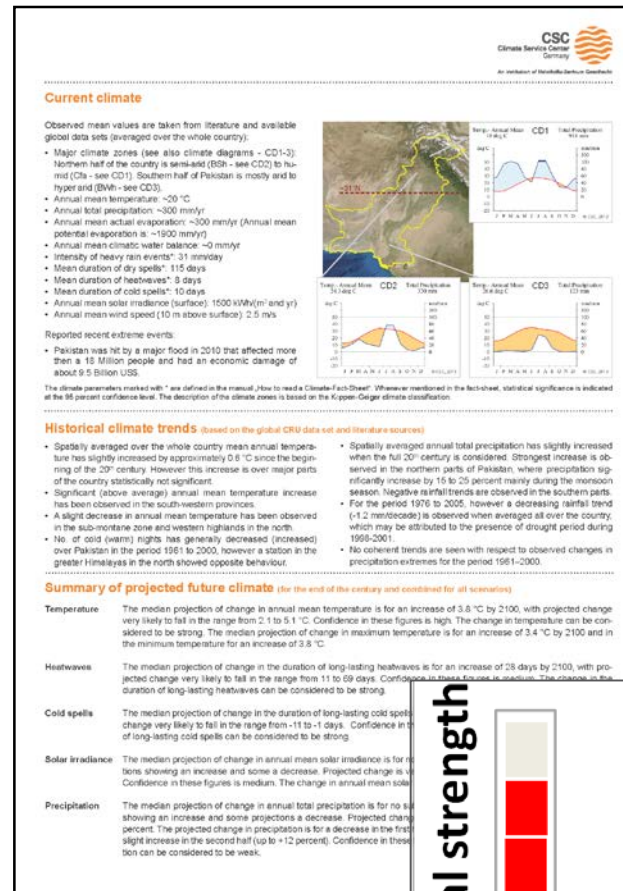
Logos: Helmholtz-Zentrum Geesthacht, Climate Service Center Germany (GERICS), Helmholtz-Zentrum Geesthacht, Alfred Wegener Institute, Helmholtz-Zentrum für Polar- und Meeresforschung.

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Prototype: Climate Fact Sheets

Example: Pakistan

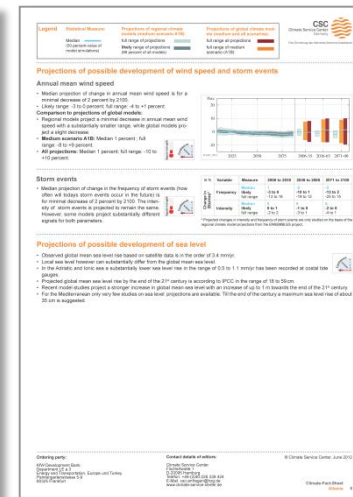
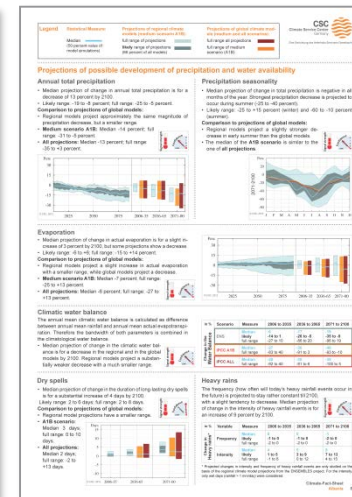
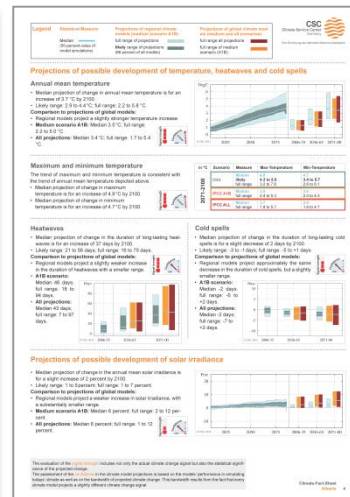
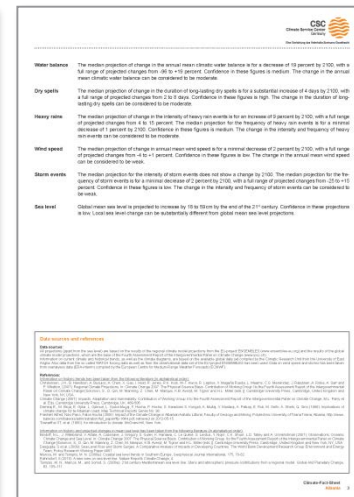
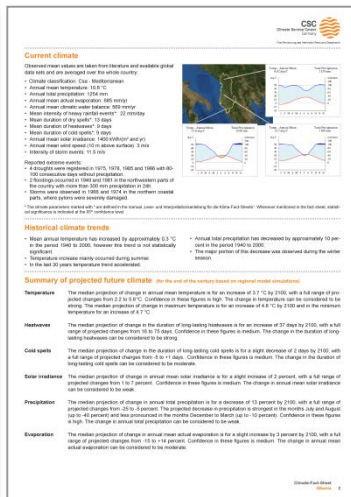
Concise climate characteristics of individual countries or regions



Available on request:
www.climate-service-center.de/climate-fact-sheets

Gerics „Climate-Fact-Sheets“

- Concise climate characteristics of a country or region for past, current and future climate development
- Based on existing multi-model ensembles of regional and/or global climate change projections (e.g. IPCC AR4 / AR5)
- For Germany, Europe and world wide (58 available + 14 upcoming)
- Including information on uncertainty and robustness of the projected climate changes
- Guidance how to read and make use of the Climate-Fact-Sheets



Method: Evaluation of Climate-Fact-Sheets

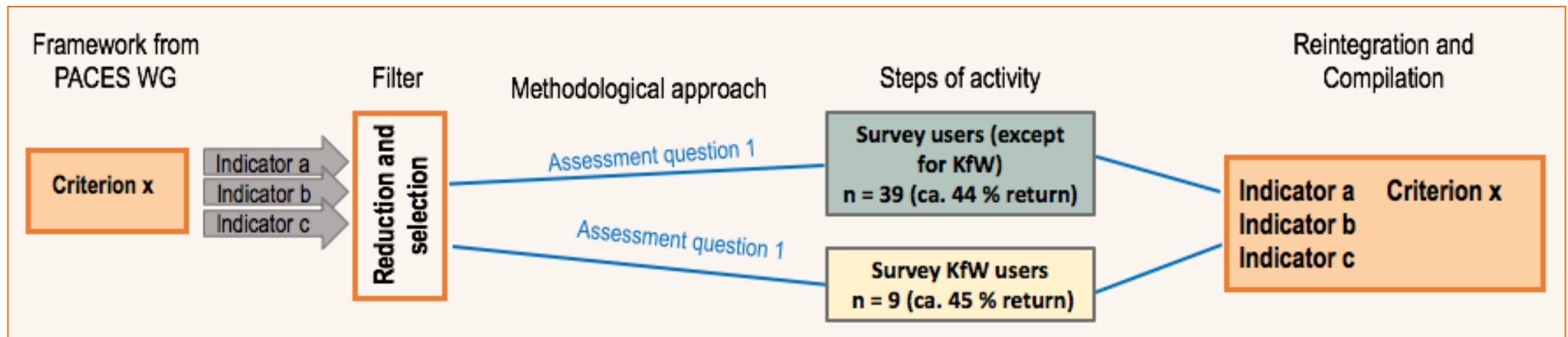
General remarks on concept

- As many users as possible were to be motivated to participate in the survey therefore we reduced and limited the number of questions
- The indicator to be assessed by the single questions should not be too obvious to the survey participants therefore we carefully formulated the questions

Method: Evaluation of Climate-Fact-Sheets

Key data of the evaluation surveys

- performed in October – December 2017
 - 108 users (May 2016 till Sept 2017) contacted (88 **users worldwide** + 20 **KfW users**)
 - 48 users participated (39 **users worldwide** + 9 **KfW users**)
- 44,5 % return (mean)



- In addition to user surveys were prepared questionnaires for the product developers
- A total of: 4 different questionnaires for 4 different groups: 2 x product developers, 2 x product users
- Statistical and media analysis
- Investigation of 12 criteria and 34 indicators

Results of evaluation of GERICS Climate-Fact-Sheets (CFS)

Outcome

Criterion: use

Indicator: breadth of use – geographically

Where do the users of the GERICS Climate-Fact-Sheets come from?

Statistical analysis

- About 290 users worldwide (except for KfW)
- Until October 2017



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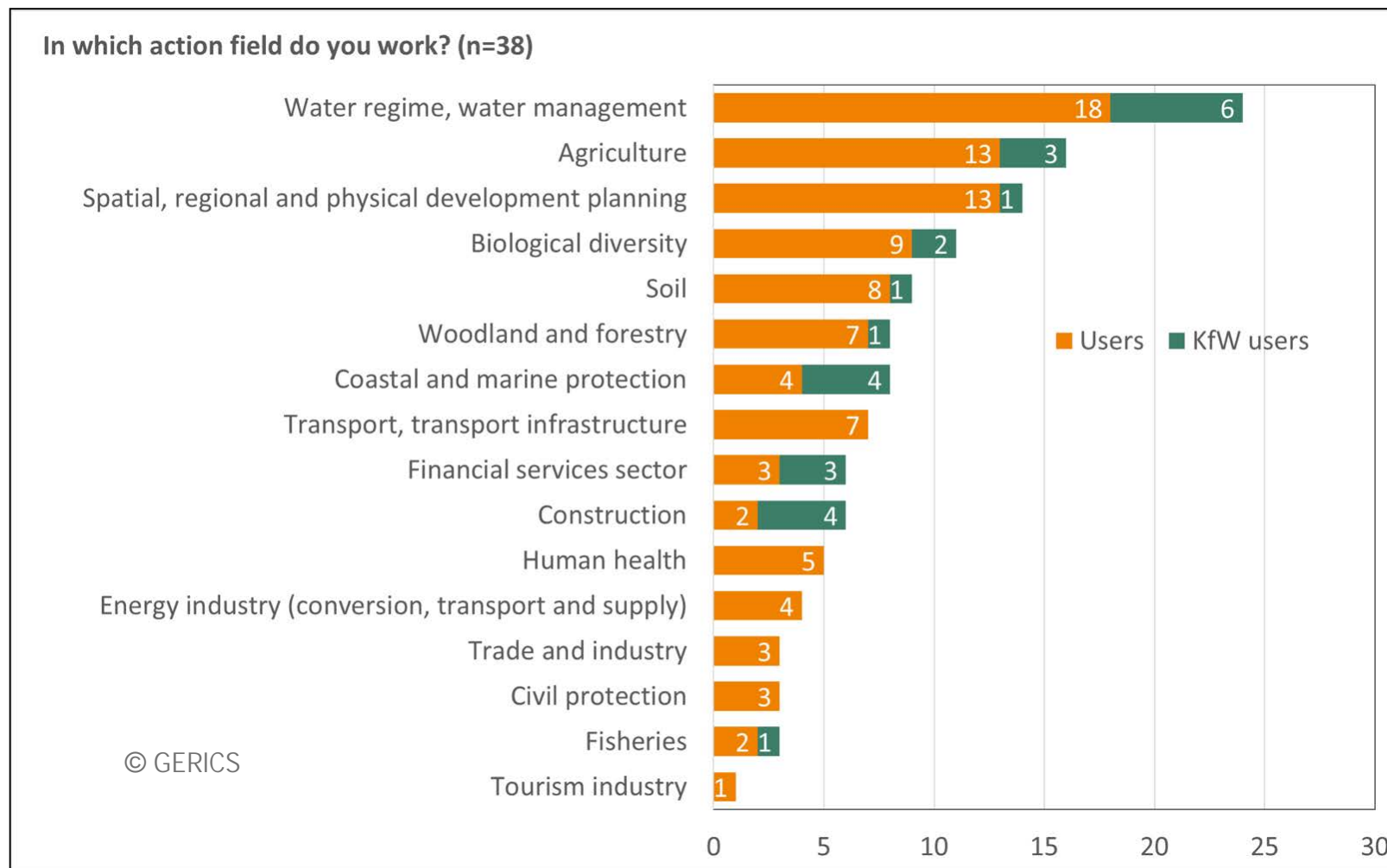


Results of evaluation of GERICS Climate-Fact-Sheets (CFS)

Outcome

Criterion: use

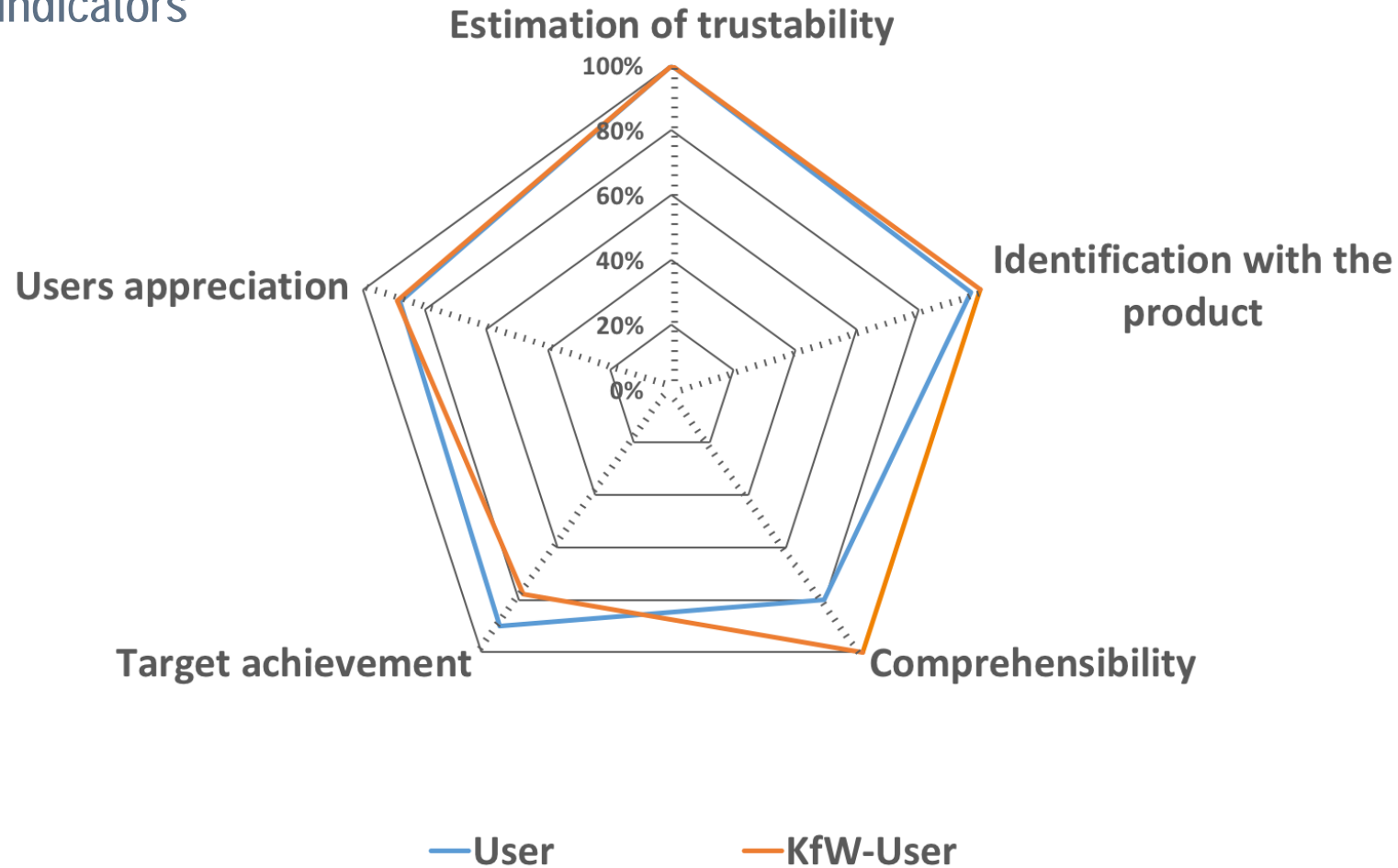
Indicator: breadth of use - thematically



Results of evaluation of GERICS Climate-Fact-Sheets (CFS)

Outcome

Criterion: satisfaction
5 different indicators





Results of evaluation of GERICS Climate-Fact-Sheets (CFS)

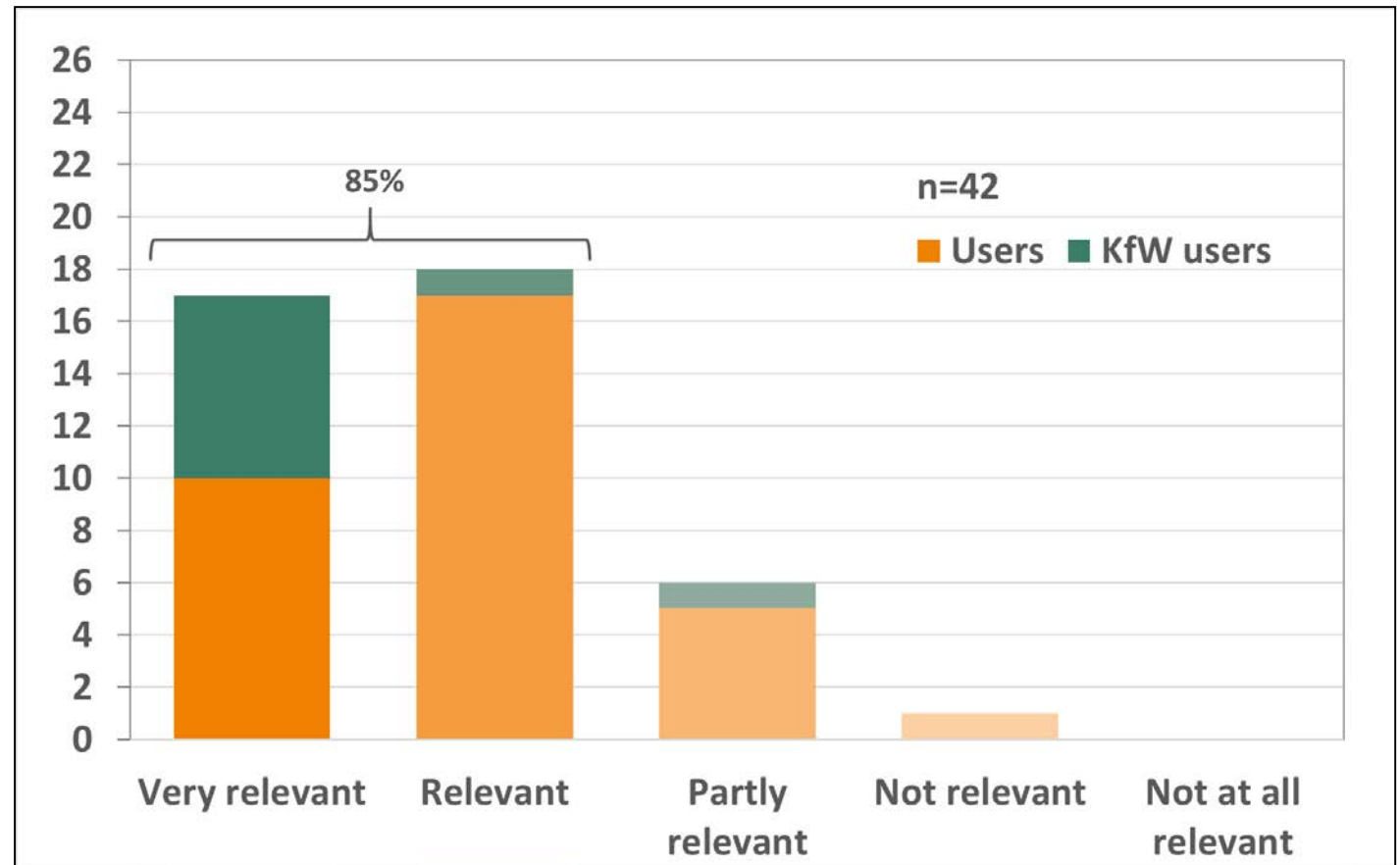
Outcome

Criterion: use

Indicator: relevance

How relevant are the Climate-Fact-Sheets with respect to climate change information you need?

85 % (mean) rated the product as very relevant or relevant





Summary and lessons learned

- ✓ The framework for evaluation of climate service products was successfully tested
- ✓ The Climate-Fact-Sheets turned out to be a successful product

- Detailed monitoring and documentation during the development process will be needed for the future
- Legal barrier: only users who had allowed us to contact them could be contacted (privacy policy), thus trying to get okay already when disseminating the product
- Societal impacts need further discussion and development



Thank you for attention