

Quality and standards – How can standards support (high) quality climate services?

Joint WP1 & WP4 Session

Climateurope2

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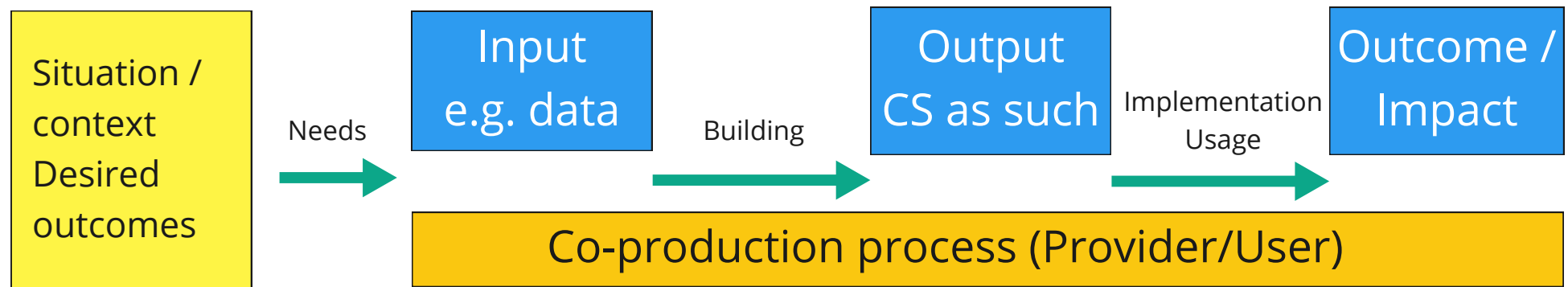
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Weichselgartner and Arheimer (2019)

“It is ill-advised to believe that the success of climate services can be increased only through ‘more accurate data’ or ‘better targeted information’.”

Quality criteria & measures of CS

Logic Model Process



<https://learningforsustainability.net/logic-models/>

Aspects for better CS quality

1. Data or input information for a CS:

Is primarily not better quality control of data (Quality assurance of data is already quite well addressed) but

- a) ensure that the **data that is suitable to address the problem;**
- b) make sure that user is aware of **limitations & uncertainties;**
- c) scientific background & expertise of provider **clear and proven**

Aspects for better CS quality

2. Co-production or “the process”:

1. Existence of a co-production process **will very likely** improve the quality
2. A high-quality co-production process can be characterized by continuous user-provider interactions, efficient feedback and evaluation processes and sufficient resources for all partners.

A good co-production process ensures **mutual understanding, transparency and building of trust** amongst all partners.

Aspects for better CS quality

3. Output / product:

1. **Ready-for-use product** (“one-size-fits-all” is normally normally not suitable)
2. **Timely delivery** (e.g. to implement necessary adaptation measures)
3. **Product improvements & maintenance**
4. **Affordable, sustainable and equitable product**

Is a (CS) product which is successfully commercialized automatically of high-quality?

Or is commercialization of a CS not at all a quality measure?

Aspects for better CS quality

4. Outcome & impact:

1. The CS is **used** and **leads to desired consequences** (e.g. adaption measures) (at least from the user side)
2. Positive feedback & recommendations by users

Quality measures are **not**:

- a) what the provider would like to accomplish
- b) how much profit can be made (on the provider side)

Quality measures of CS

Guiding principles for high-quality CS

Science-based: Climate services should be based on credible science and evidence. Service providers should use the best available scientific data, models, and methods to develop and deliver climate information. References to peer-reviewed literature and / or official certificates (e.g., Certified Consulting Meteorologists of the American Meteorological Society) can **build confidence and trust** in the user community.

User-focused: Climate service providers should engage with users and stakeholders to understand their needs, priorities, and decision-making contexts. This will help ensure that climate information is **relevant, usable, and actionable**.

Quality measures of CS

Guiding principles for high-quality CS

Transparent: Climate services should be transparent about their data sources, methodologies, and assumptions. Climate service providers should clearly communicate the limitations and uncertainties of climate information to users and stakeholders to **build and increase trust**. Here standards and guidelines (e.g., such as the FAIR principles) can help the user community to develop trust in the product and to be aware of the limitations.

Collaborative: Climate services should be developed and delivered through collaboration among different stakeholders, including scientists, policymakers, practitioners, and users. Service providers should engage in regular dialogue with users and stakeholders to ensure that climate information is **useful and relevant**. Feedback by the users provide valuable information to further improve the quality of the product. Thus, **feedback and evaluation processes** should be a vital part of the CS development.

Quality measures of CS

Guiding principles for high-quality CS

Timely and accessible: Climate services should be provided in a **timely and accessible** manner. Service providers should use user-friendly formats and platforms to deliver climate information to users, taking into account differences in literacy levels, languages, and technological infrastructure. Information should be easily locatable and (to the extent possible), be freely accessible.

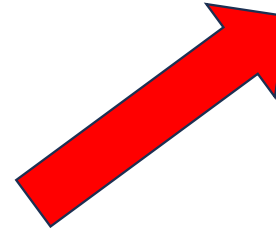
Sustainable: Climate Services should be designed to be sustainable over the long term. Service providers should ensure that their services are adequately resourced over time, and that they have the capacity to adapt to changing user needs, new scientific developments, and evolving policy contexts.

Equitable: Climate service products should be freely accessible and usable to the extent possible, to ensure that they are available to users with limited resources. The outcome of a climate service should (to the extent possible) take equitable measures into account.

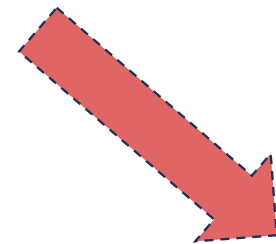
Quality criteria (selection)

- Demand driven process
- User involvement (from the beginning)
- Engagement with all relevant stakeholders
- Tailoring to users needs
- Empowerment of users
- Evaluation & Feedback processes
- Proven scientific expertise of provider
- High quality data / information, appropriate for problem
- Metadata according FAIR principles
- Uncertainties documented & communicated
- Degree of innovation / State-of-the-art models & methods
- Product fit-for-purpose (Appropriateness)
- Accessibility / Easy entry
- Timely delivery
- Sustainable product
- Equitable process and product

Criteria & Processes
which can be
standardised



Criteria & Processes
which can not be
standardised



Standards supporting quality aspects

- FAIR principles
- ...



Envisaged results

- Transparency
- Trust
- (Multiple) usage
- Envisaged impact (at least for the user)
- Multiplier effects (e.g. recommendations)

Quality measures of CS - Next steps

Deliverable 4.1: Literature-based guiding principles for high-quality climate services:

https://earth.bsc.es/climateurope2/lib/exe/fetch.php?media=wiki:content:climateurope2_deliverable_4-1-final.pdf

Community and user involvement

- Feedback on Deliverable 4.1 from CE2 consortium
 - Community involvement through surveys & workshops
 - Case studies
 - User consultation by surveys and interviews
- > Revised guiding principles by mid of next year D4.4

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Thank you

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