@isadorachristel

Multi-anual to decadal climate predictability in the North Atlantic-Arctic sector

22/09/2021

Barcelona Supercomputing Center
Centro Nacional de Supercomputación

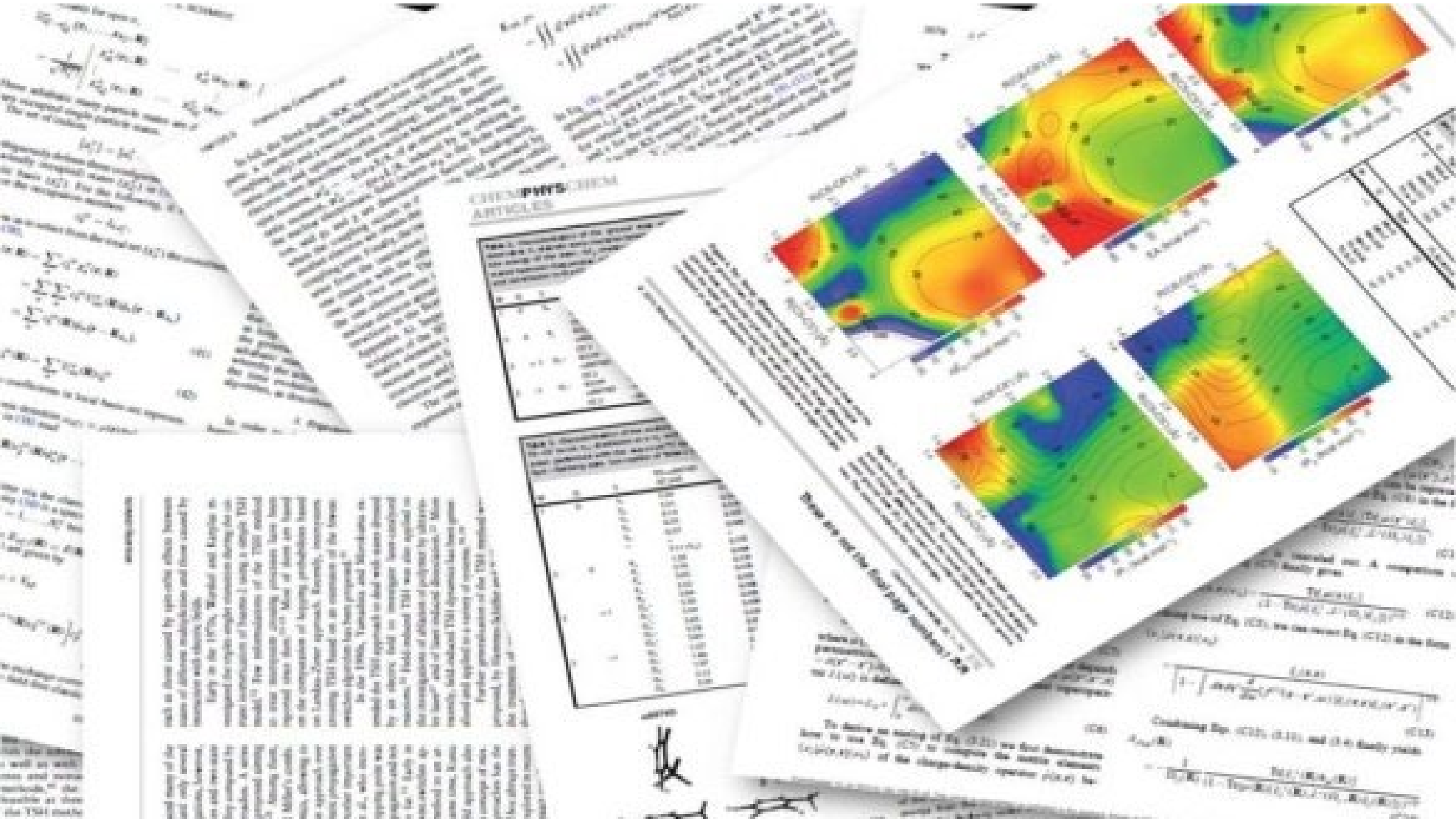
EXCELENCIA SEVERO OCHOA

What happens to the data after they are produced?

Isadora Christel Jiménez

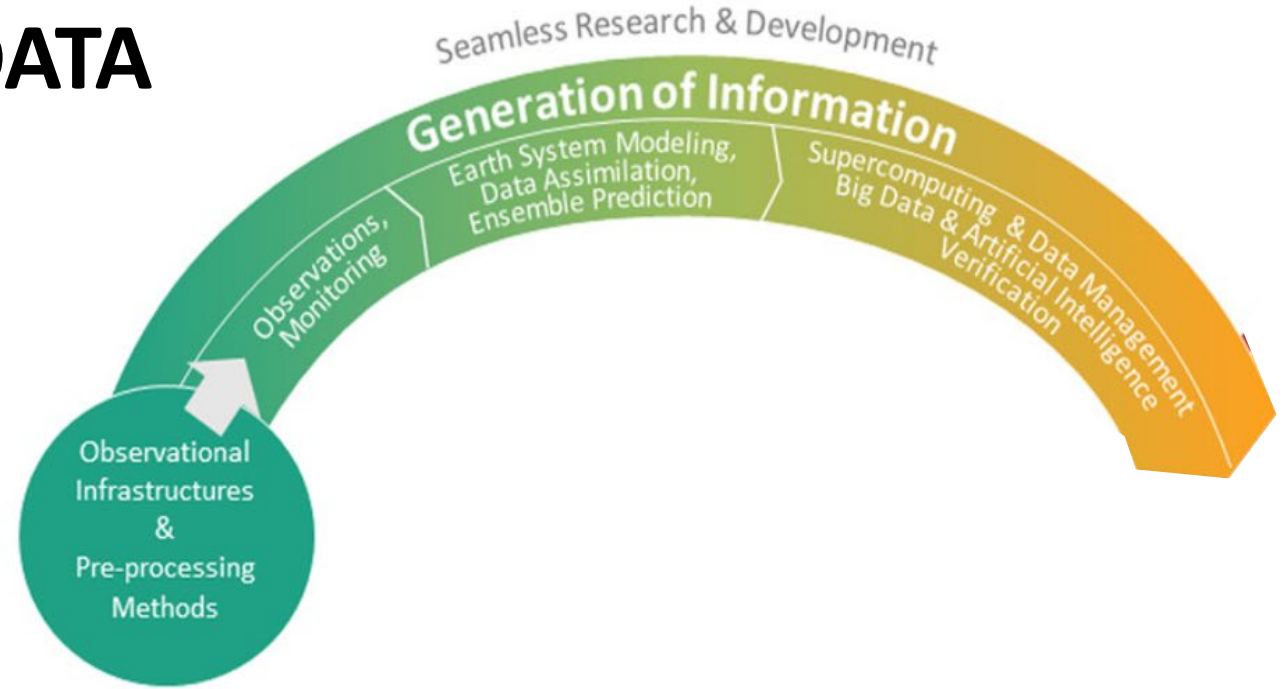
Head of Knowledge Transfer team, Earth Sciences Department

Building on the knowledge of **many BSC colleagues**: Albert Soret, Marta Terrado, Dragana Bojovic, Diana Urquiza, Konstantina Chouta, Andria Nicodemou, Sara Octenjak, Jose Canovas, Miguel Segura, Marina Conde, Ilaria Vigo, Asun Lera St. Clair, Luz Calvo, Guillermo Marin, Fernando Cucchietti, Francisco Doblas-Reyes



[Advancing Research for Seamless Earth System Prediction
Ruti et al. (2020) BAMS 101(1), E23-E35]

DATA



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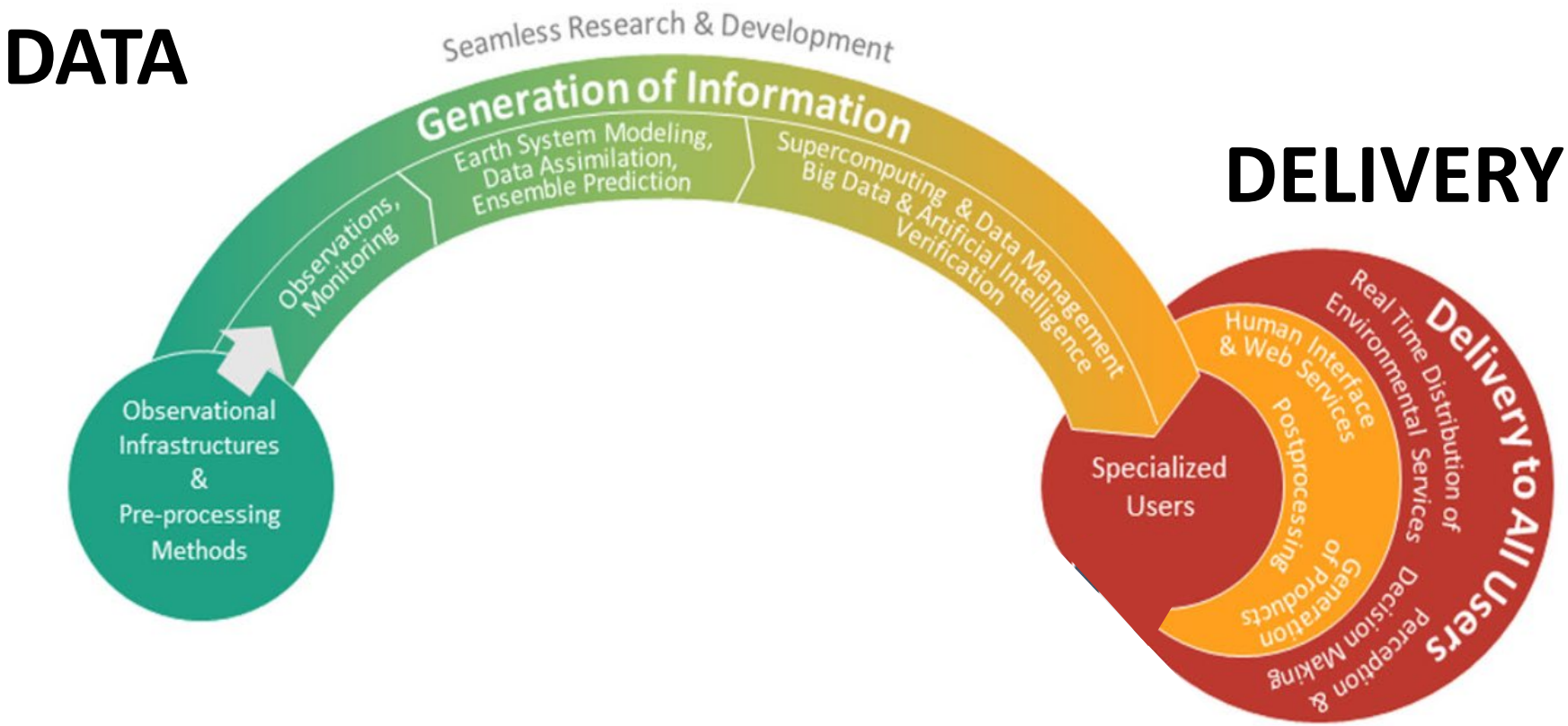

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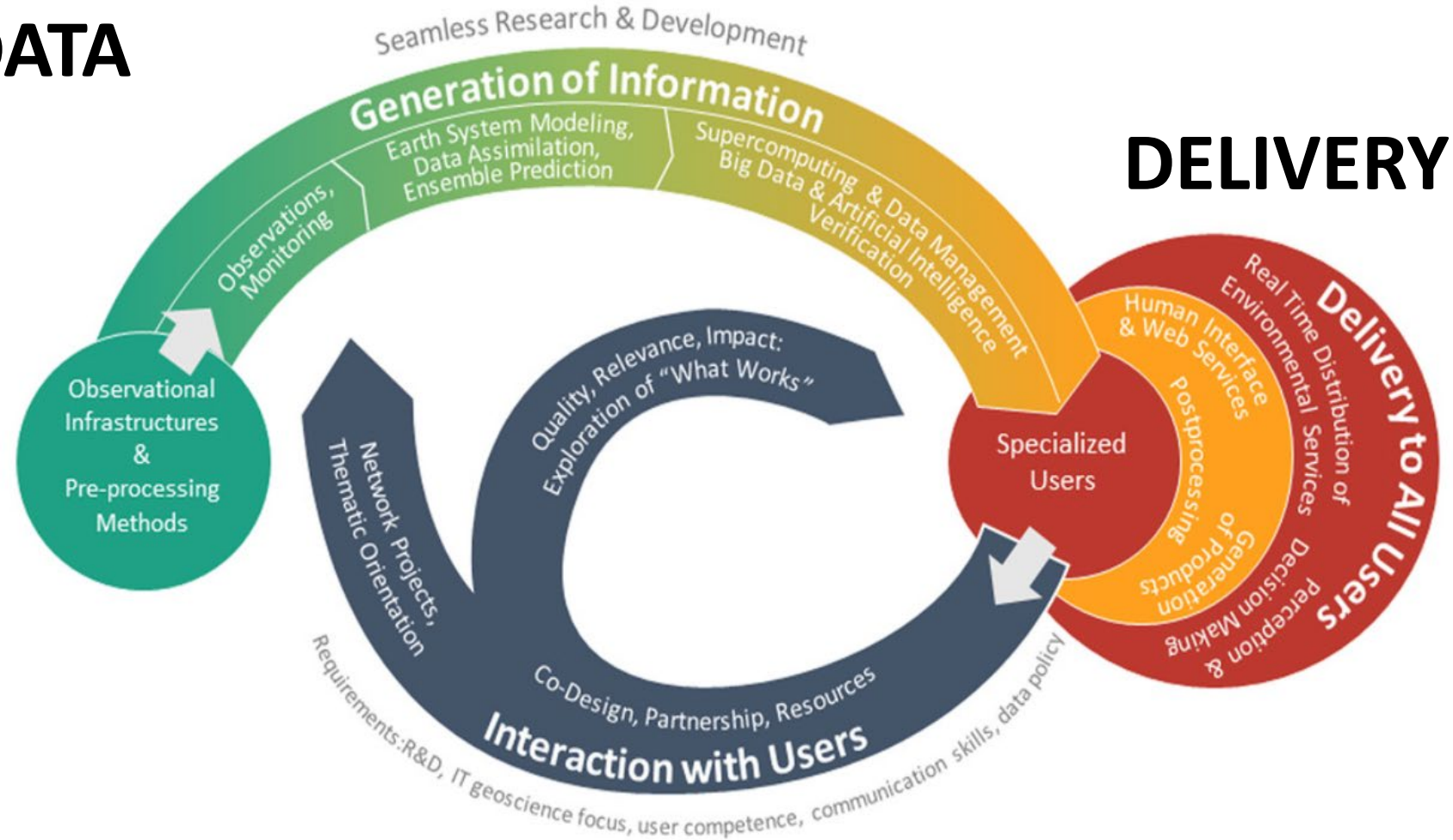

DELIVERY

FEEDBACK

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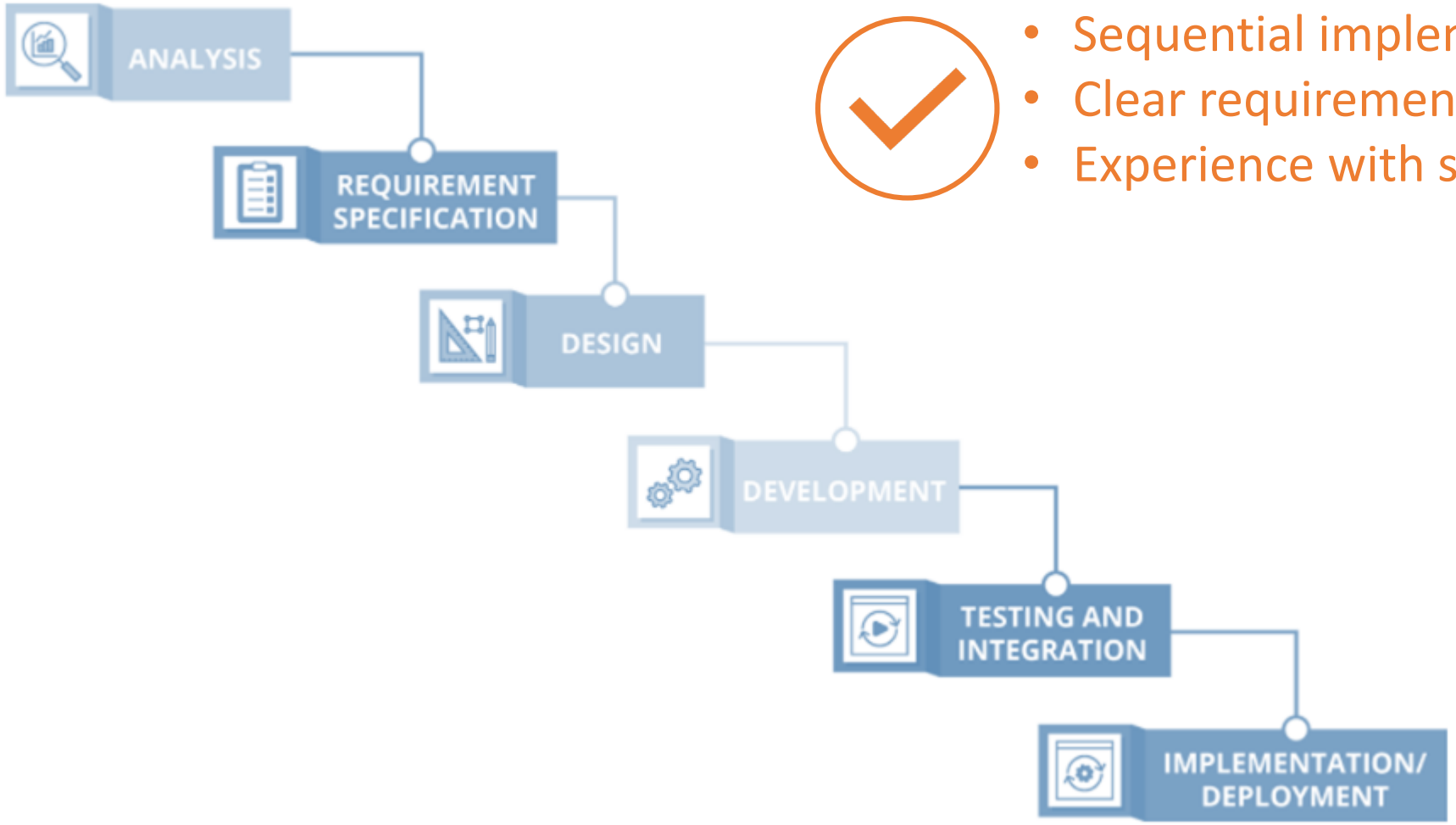
Waterfall model



- Sequential implementation
- Clear requirements
- Experience with similar projects

https://decadal.bsc.es/

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Contact Us

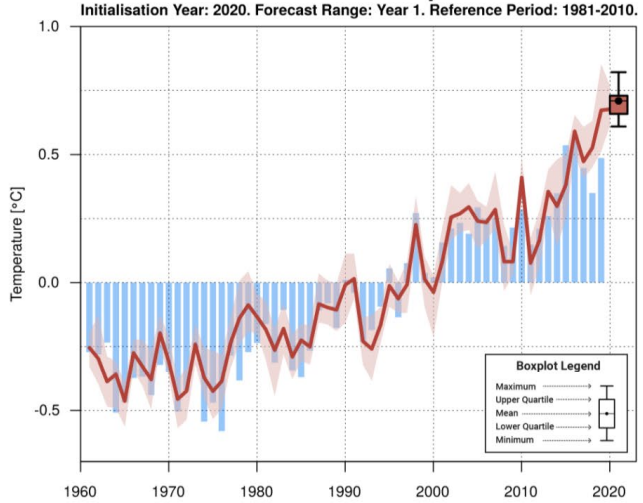
About | Forecast | Documentation | Research | Publications

Forecast

Start year: 2020 | Forecast range: Year 1 | Forecast type: Indices | Forecast product: Global mean surface temperature | APPLY

Global Mean Surface Air Temperature

Initialisation Year: 2020. Forecast Range: Year 1. Reference Period: 1981-2010.



Anomaly Correlation Coefficient = 0.96

HadCRUT4.6
EC-Earth3.3 Decadal Predictions

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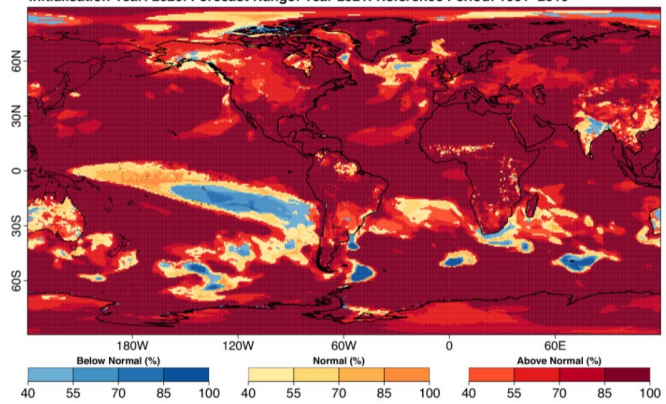
www.decadal.bsc.es

Read more about the methodology

Most Likely Tercile for Surface Temperature

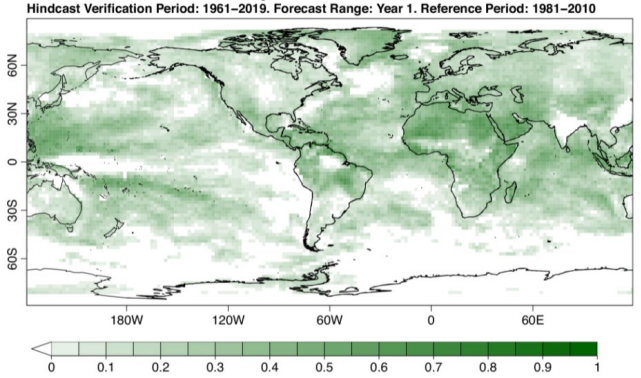
Initialisation Year: 2020. Forecast Range: Year 2021. Reference Period: 1981–2010



EC–Earth3.3 Decadal Predictions

RPSS for Surface Temperature

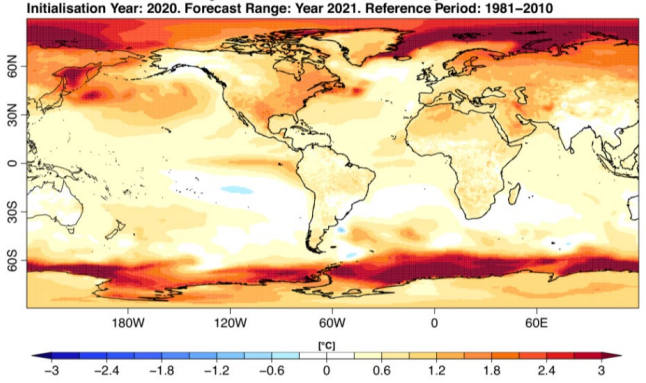
Hindcast Verification Period: 1961–2019. Forecast Range: Year 1. Reference Period: 1981–2010



EC–Earth3.3 Decadal Predictions
Observations: GISTEMPv4

Forecast Anomaly for Surface Air Temperature

Initialisation Year: 2020. Forecast Range: Year 2021. Reference Period: 1981–2010



EC–Earth3.3 Decadal Predictions

Disclaimer and usage

This website presents the annual and multi-annual forecasts of a certain number of climate variables based on the projected state of the atmosphere/ocean system as provided by the EC-Earth decadal forecast system. These forecasts are still in the experimental phase and while they show skill against various baseline measures, they should not be used as a basis for decisions.

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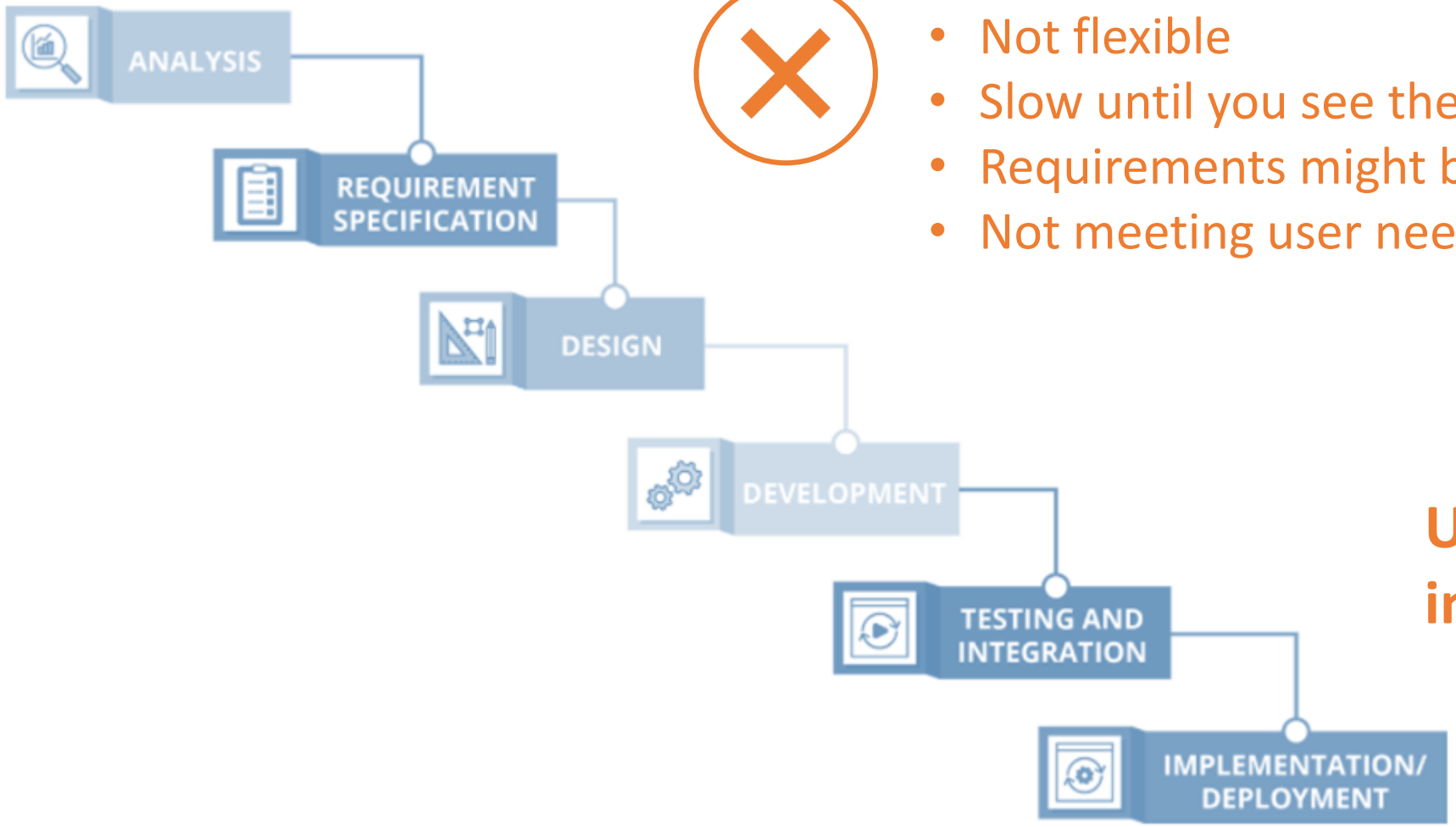
Waterfall model



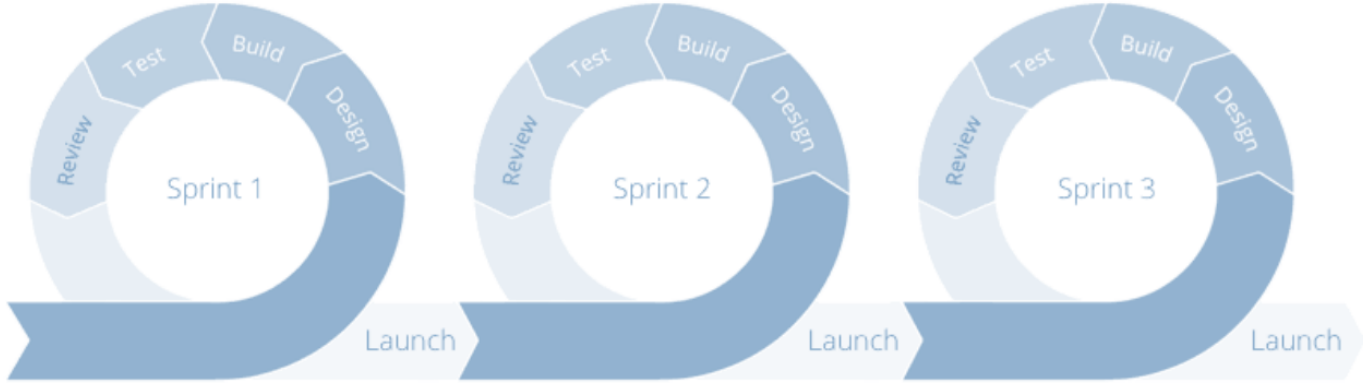
- Not flexible
- Slow until you see the final product
- Requirements might be misunderstood
- Not meeting user needs

User/stakeholder inputs at the end

“What if we found ourselves building something that nobody wanted?

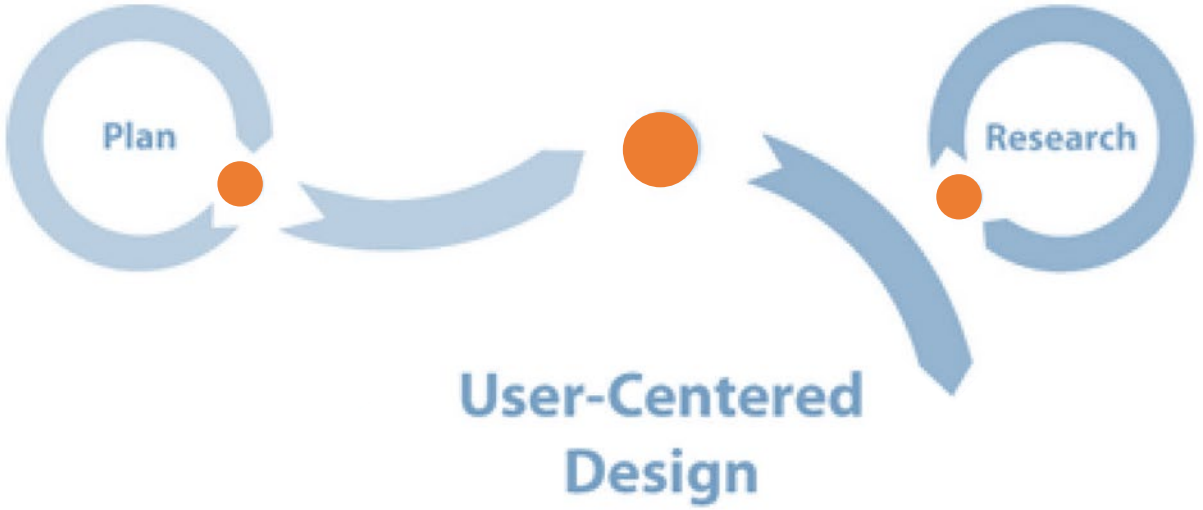
In that case, what did it matter if we did it on time and on budget?”—Eric Ries

User Centered Design + Agile development for climate services



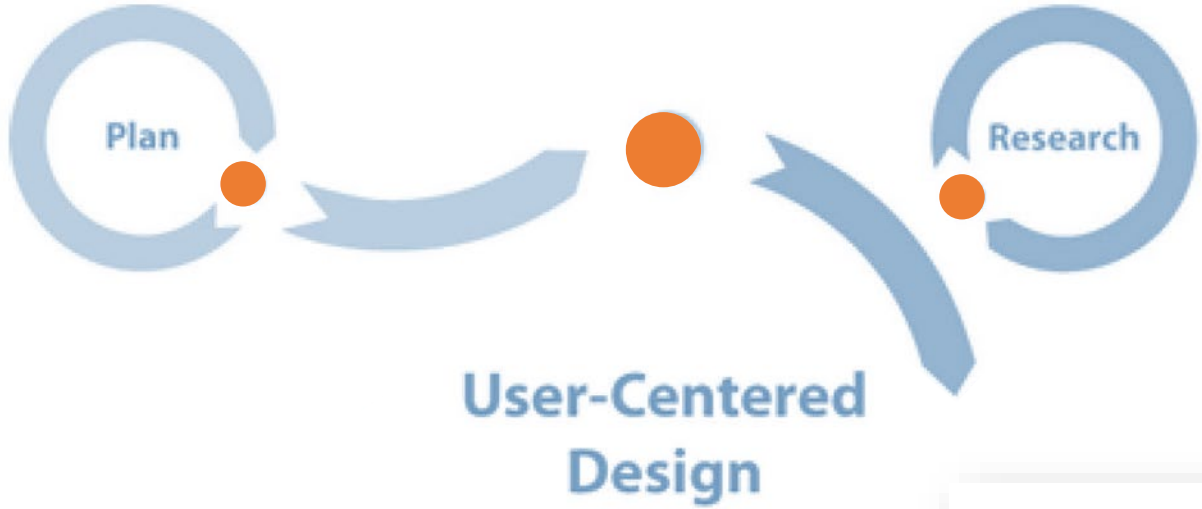
- Increased flexibility
- Quicker and efficient
- Improved collaboration across experts of different fields and stakeholders
- Greater knowledge building
- Meet user needs, focus on User Experience

- Identify key target group
- Competitor analysis



- Engage with users to understand their reported needs and observed behaviour
- Determine use of existing tools

- Identify key target group
- Competitor analysis



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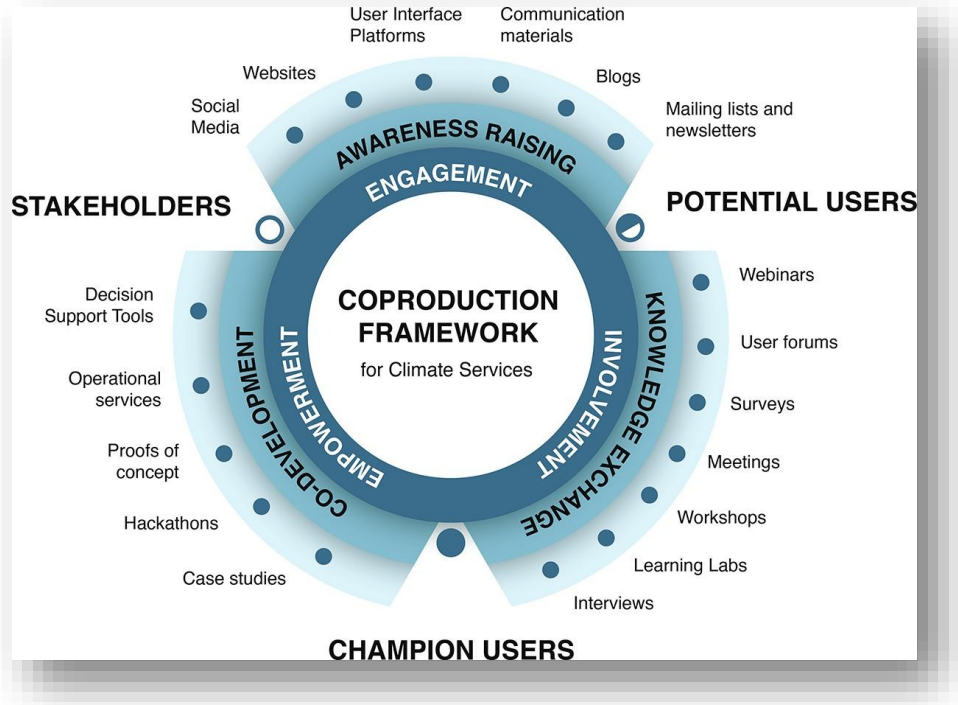

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Bojovic et al. (2021)
Global Environmental Change, 68

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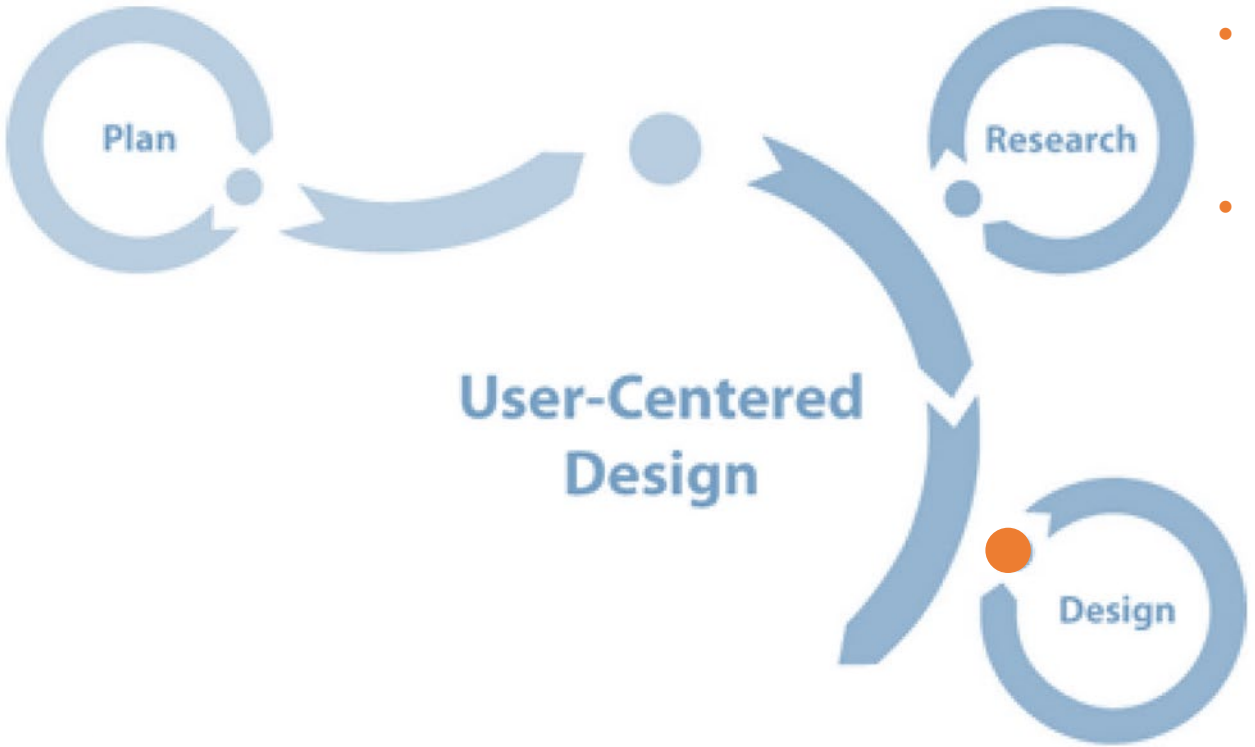
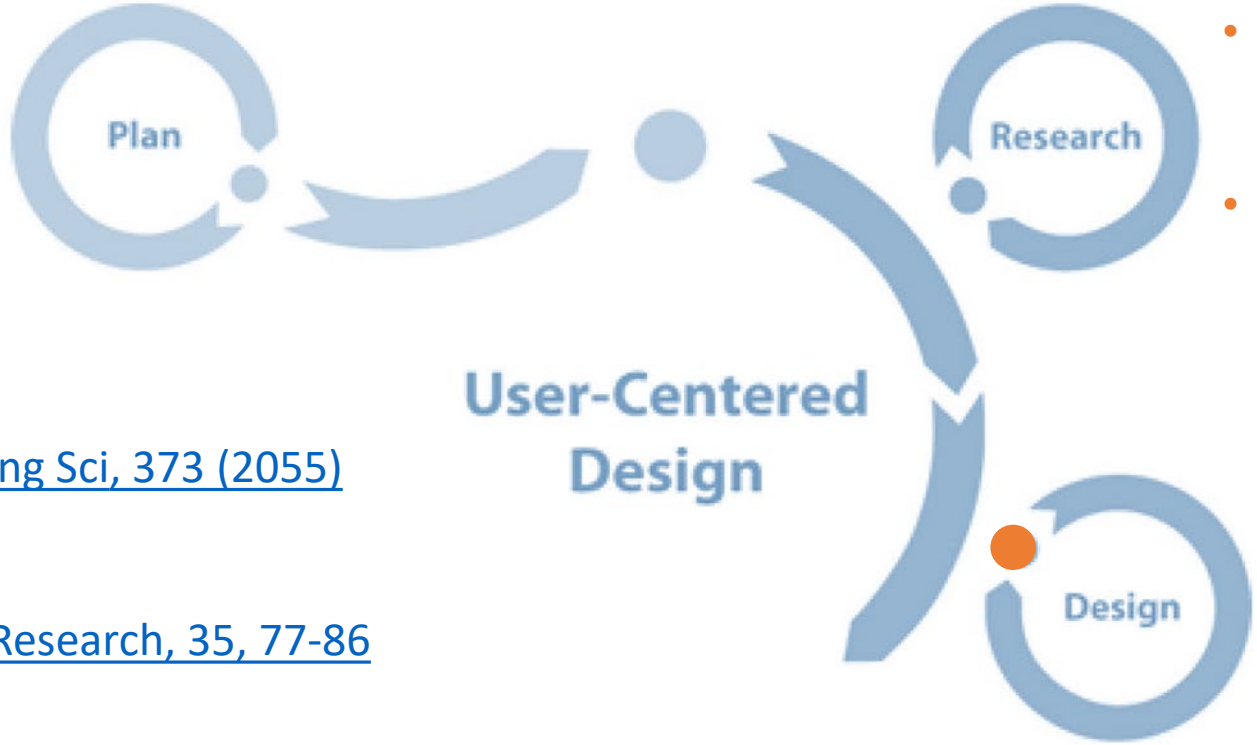


- Engage with users to understand their reported needs and observed behaviour
- Determine use of existing tools

- Data tailoring
- Data visualisation
- Prototyping
- Interaction design

- Identify key target group
- Competitor analysis



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- Determine use of existing tools

Uncertainty communication

Taylor et al. (2015)
Philos Trans A Math Phys Eng Sci, 373 (2055)

Taylor et al. (2021)
Journal of Meteorological Research, 35, 77-86

- Data tailoring
- Data visualisation
- Prototyping
- Interaction design

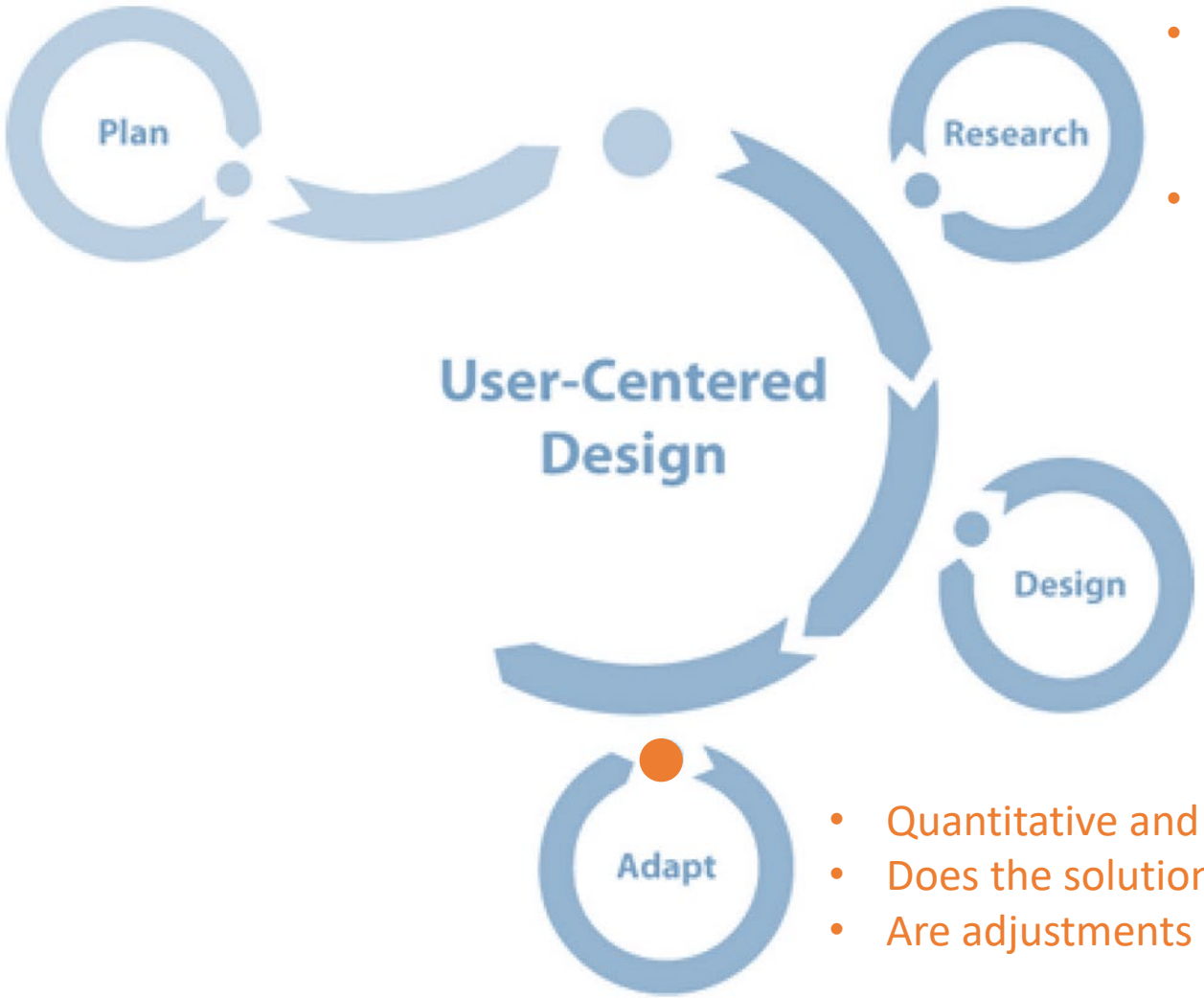
Service design

Christel et al. (2018) Climate Services, 9, 111-121

Data visualisation

inDUST Webinar on Data visualisation tips
https://youtu.be/yXhRsv0wL4w

- Identify key target group
- Competitor analysis



- Engage with users to understand their reported needs and observed behaviour
- Determine use of existing tools

- Data tailoring
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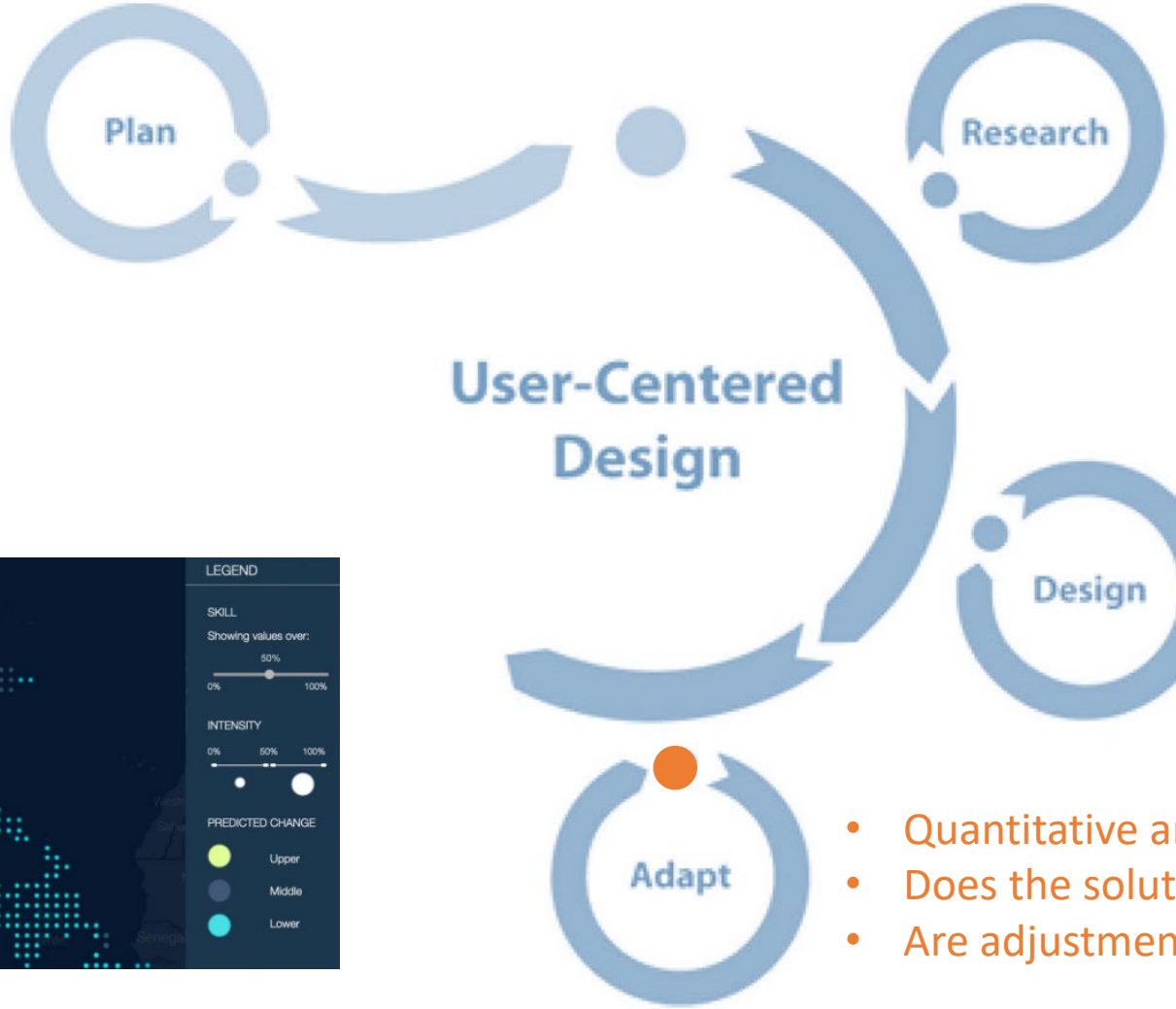
- Interaction design

- Quantitative and qualitative prototype testing
- Does the solution solve the user need?
- Are adjustments needed before development?

- Identify key target group
- Competitor analysis



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[Calvo et al. (2021) BAMS]

- Identify key target group
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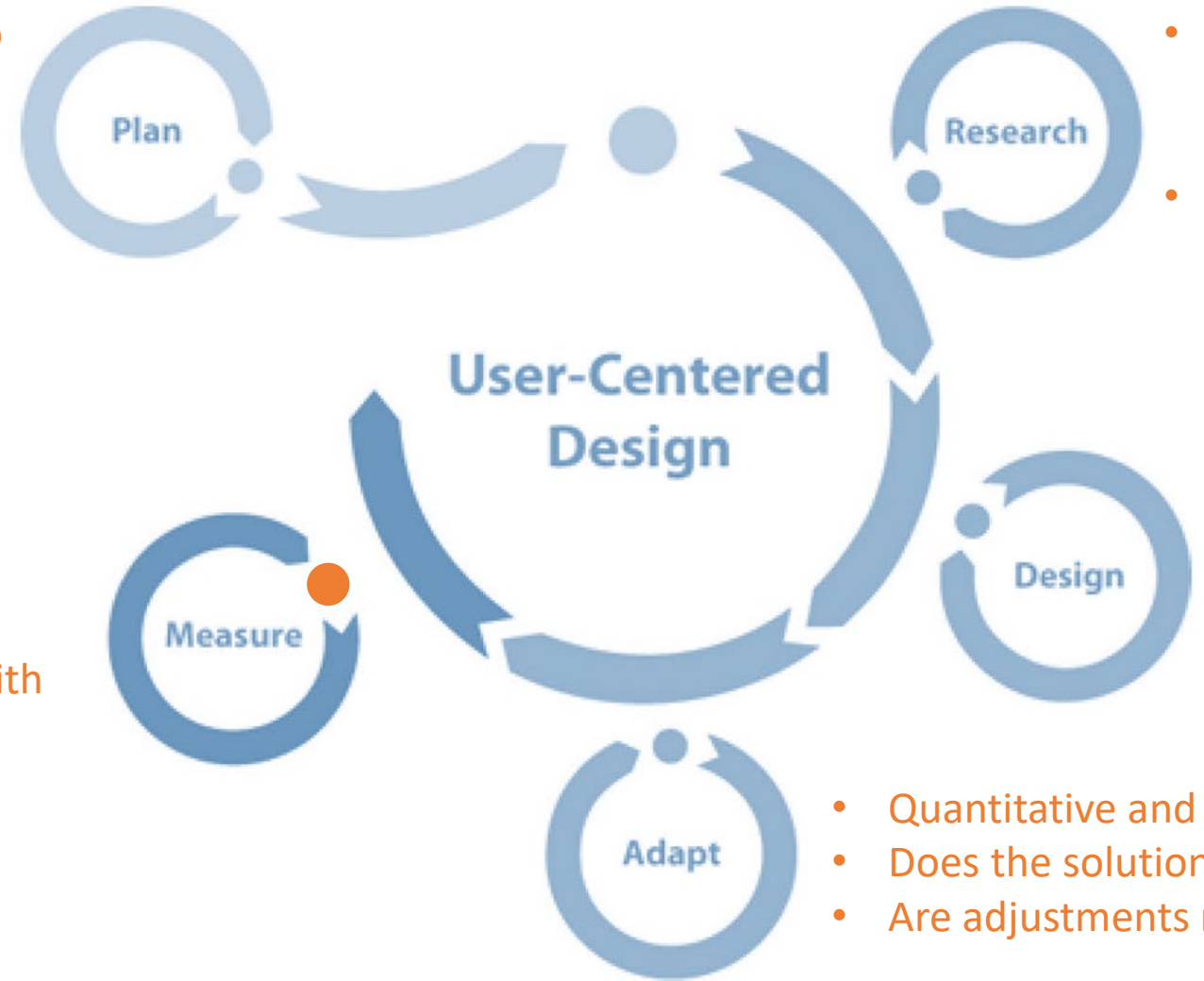

- Engage with users to understand their reported needs and observed behaviour
- Determine use of existing tools

- Data tailoring
- Data visualisation
- Prototyping
- Interaction design

- Evaluate the product experience
- Ensure solution aligns with user requirements

- Quantitative and qualitative prototype testing
- Does the solution solve the user need?
- Are adjustments needed before development?

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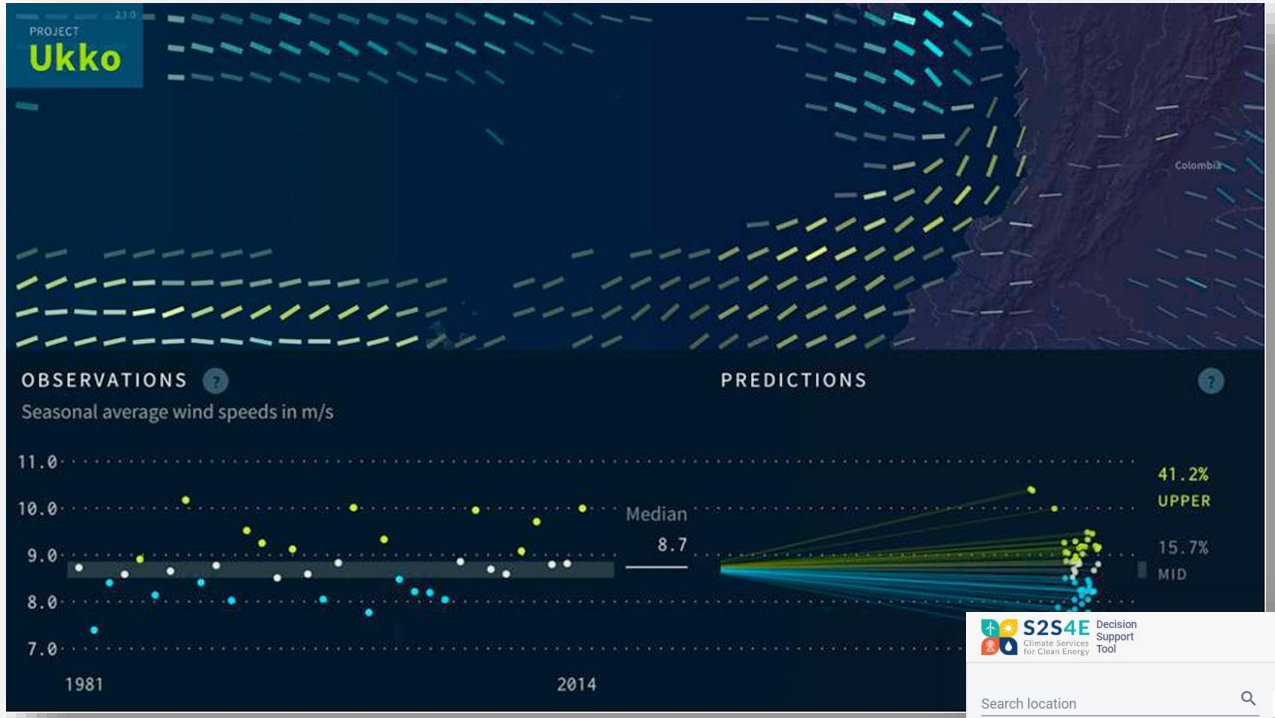

https://project-ukko.net

EUPORIAS

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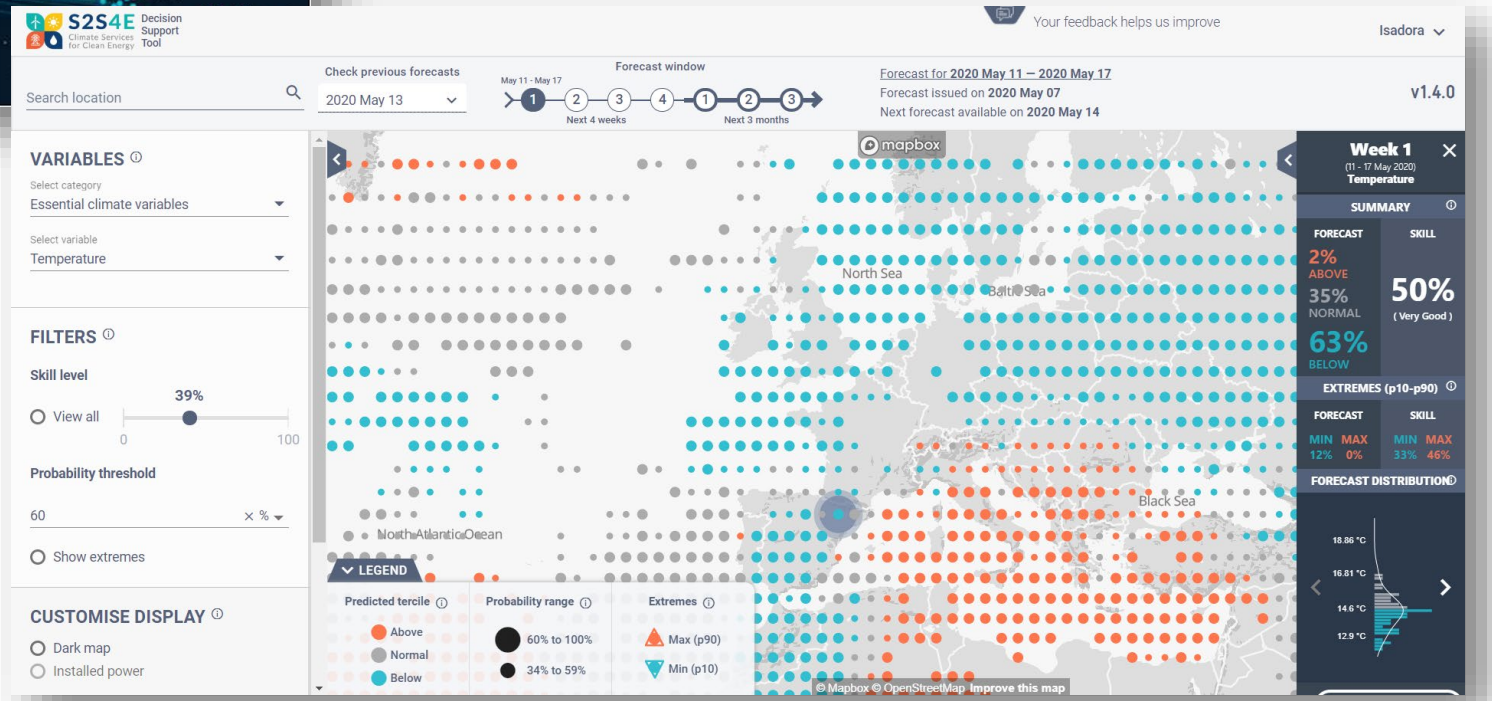
S2S4E
Climate Services for Clean Energy

https://s2s4e.eu/dst



What happens to the data after they are produced?

Climate services still have a long process ahead

- is time consuming
- needs user engagement all over the process
- requires a transdisciplinary approach

THANK YOU

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