



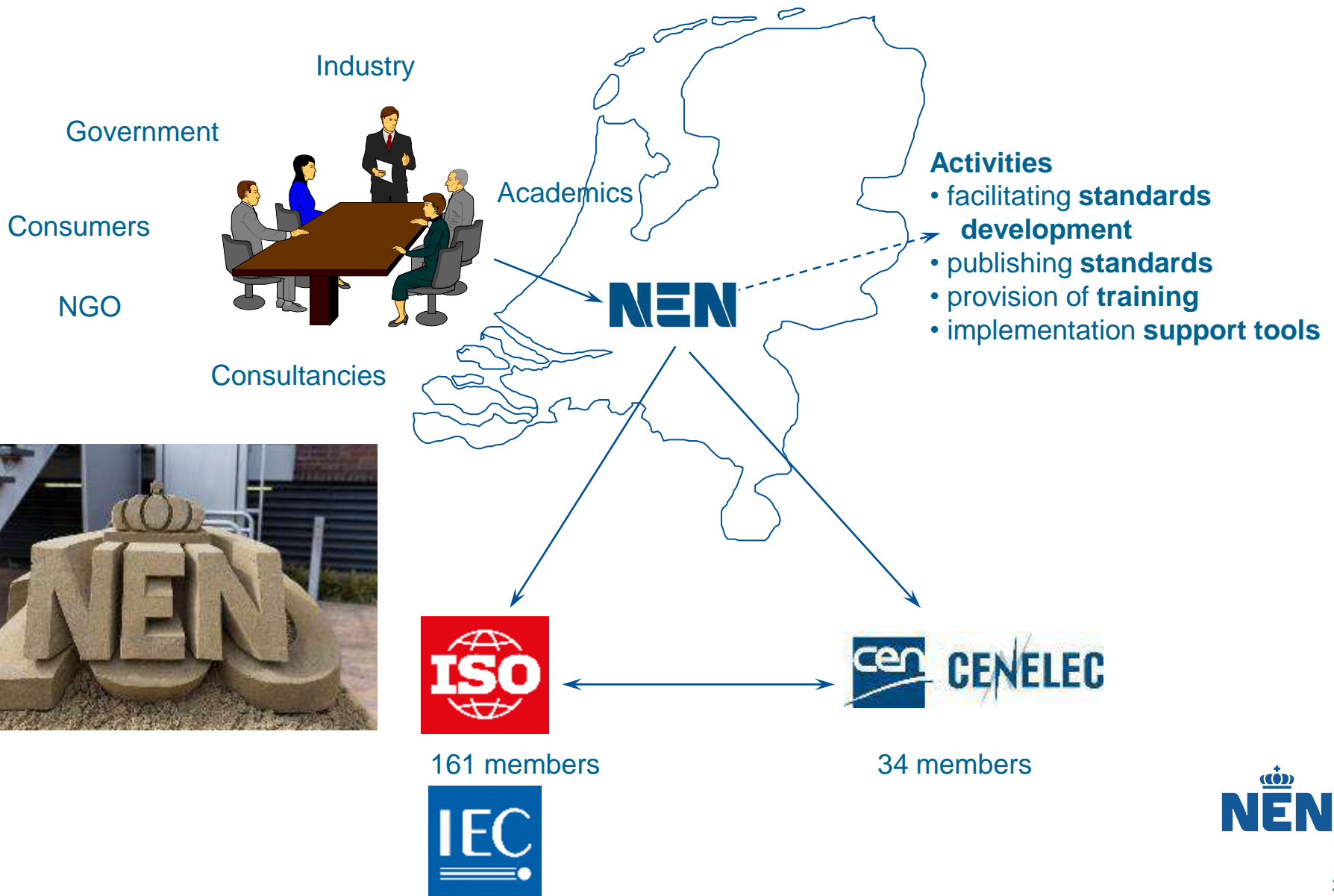
# **European activities on integrating Climate Change Adaptation into standards – mandate 526**

*17 March 2021  
Ab de Buck, NEN*

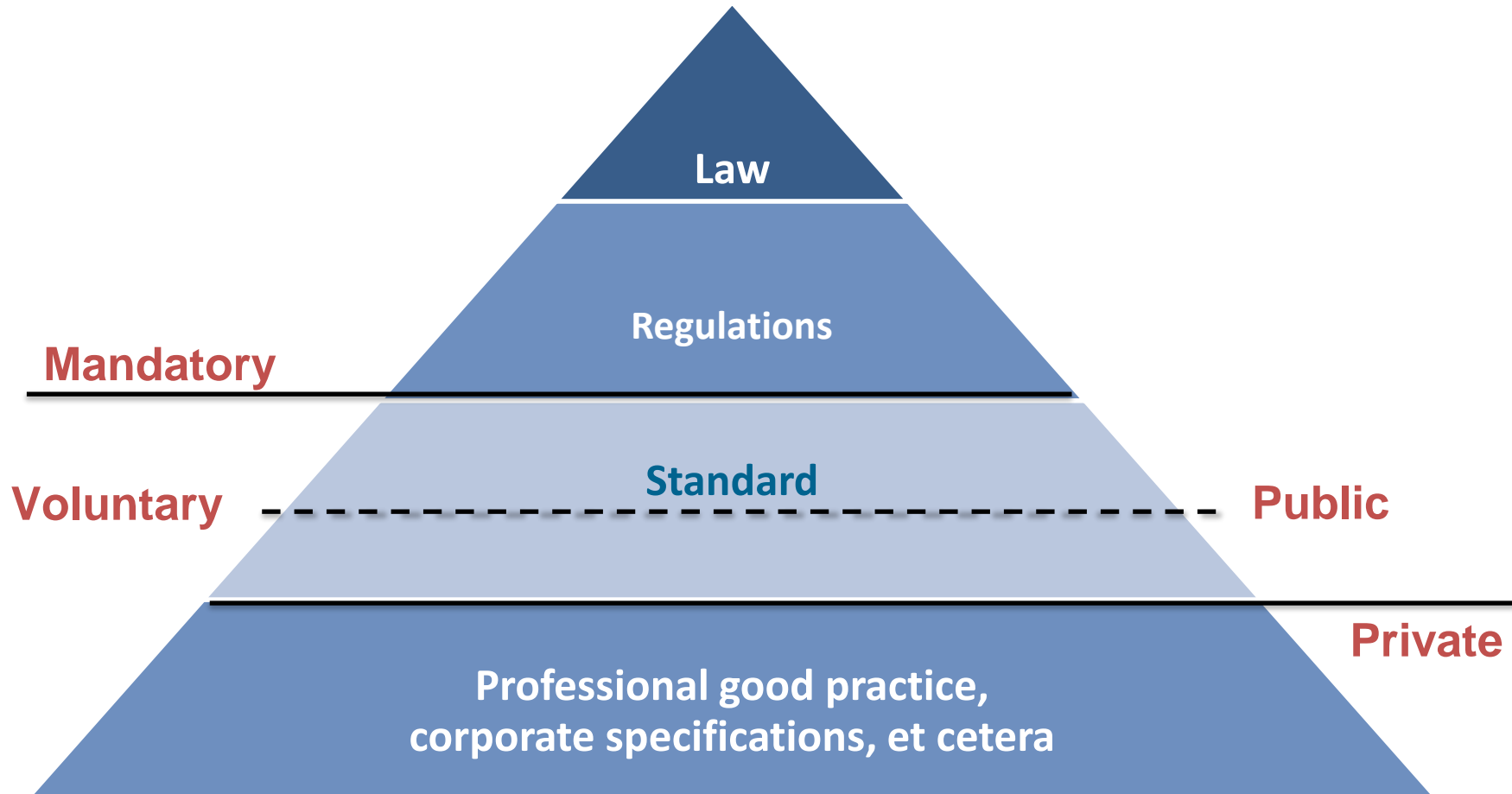
# This presentation

- NEN and climate change adaptation
- Developments on integrating ACC into European standards - project M 526
- Tailored Guidance
- Project Team 1: linking future climate information to Eurocodes and other infrastructure standards
  - Results Deskstuy: present requirements in standards for climate information
  - Workshop
  - (outline of a) TECHNICAL REPORT

# NEN – Dutch Standards Body



# Standards, laws and regulations



# NEN and climate change adaptation

## *European level:*

- Secretary CEN/CENELEC Coordination Group on ACC
- Mandated Project from EC to CEN/CENELEC:
  - revision of European infrastructure standards
  - adaptation measures
  - linking future climate information to Eurocodes
- RESIN– inventory of standards for adaptation measures
- C3S/NEN: inventory of data needs for standards

## *National level:*

- Contribution to ISO standards on ACC
- National Dutch platform on ACC in standards

# Mandate 526: Revision of infrastructure standards

- **Objective:** building and maintaining climate resilient infrastructures throughout the EU
- Focus on **four sectors:** Transport, Energy and ICT infrastructures and Buildings/construction
- **Key activity:**
  - revision of selected standards for infrastructures, 15 in revision (12 planned)
  - Tailored guidance document for inclusion of CCA into infrastructure standards
- **Coordination:** CEN Coordination Group on ACC (chair: Dr. A. Walter, project management: NEN)
- **Timeline:** 2014 - 2022



# Priority for infrastructure ....

- Key for functioning of society
- Having long life times in which climate will change
- Focus on four sectors: buildings, energy, ICT and transport infrastructure



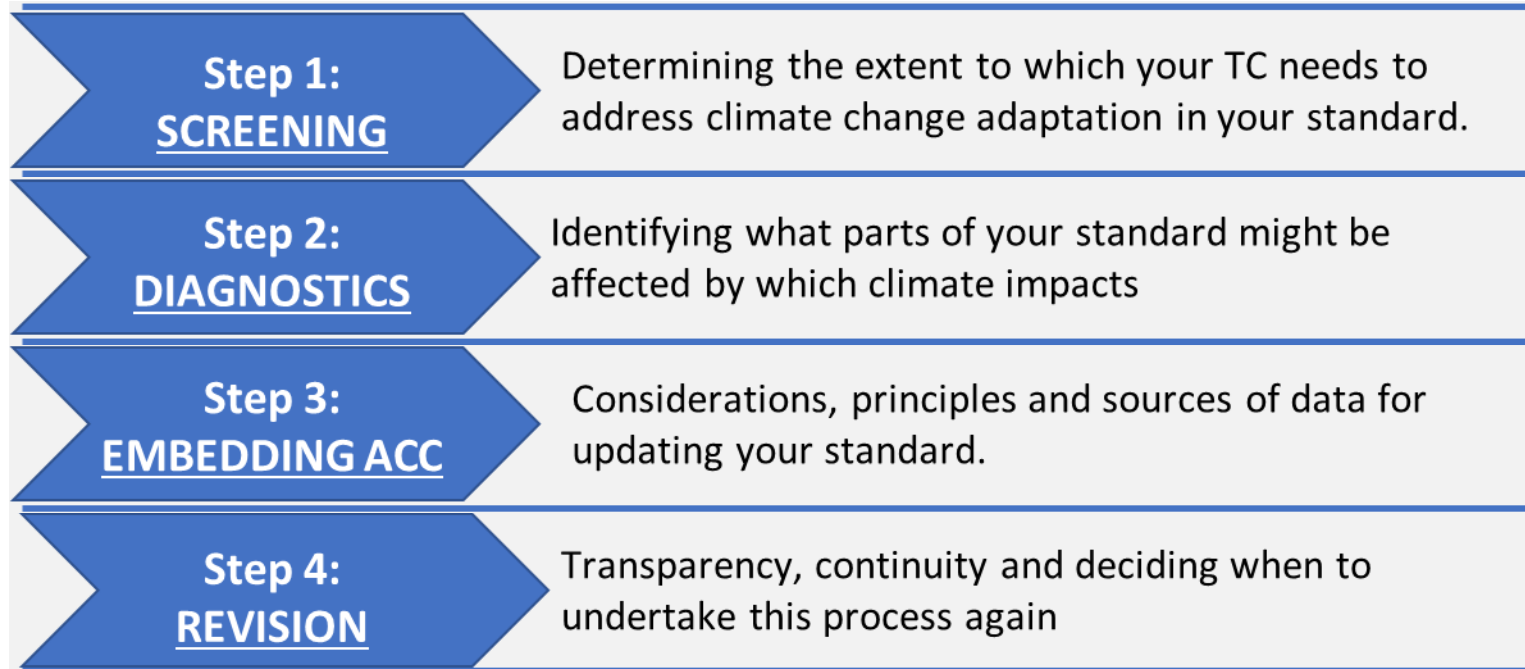
# Tailored Guidance



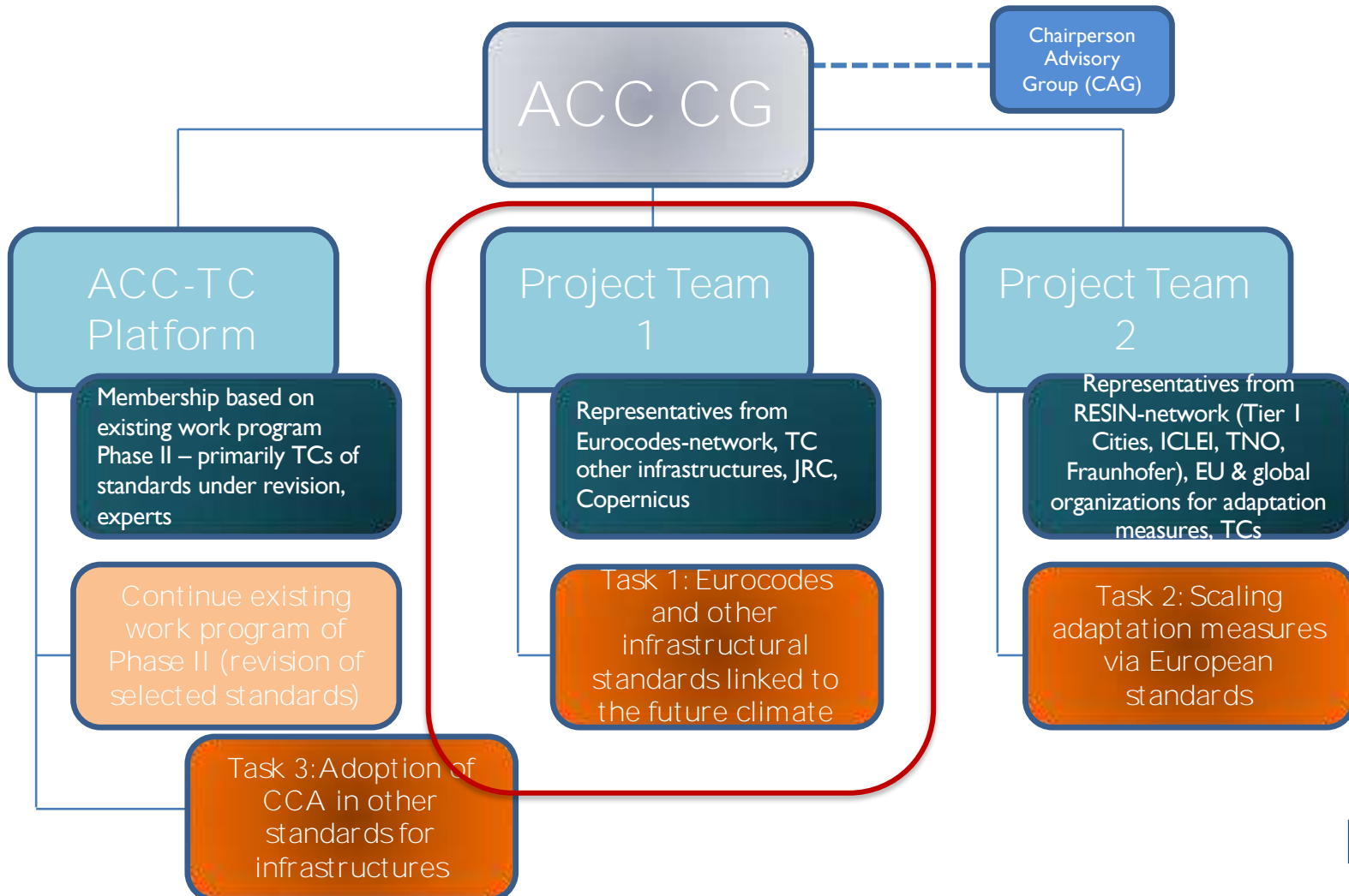
- Currently Draft 10
- Still a live document
- Opportunity to work with TCs on delivering it
- Opportunity to improve content



# Tailored Guidance (4–Step Process)



# Organisation of the Mandate 526



# Project-team 1 - Linking infrastructure standards to future climate conditions

## *Participants:*

Nick Malakatas, Emilio Bastidas-Arteaga, Boulent Imam, Svend Ole Hansen, José Matos, Francesco Ricciardelli, Hans-Martin Füssel, John Dora, Silvia Dimova, Chiara Cagnazzo, Efren Feliu, Jorge Paz Jimenez, Bodo Wichura, Jean-Marie Allessandrini, Manfred Fuchs, **John Dora (chair)**, Ab de Buck (secretary)

## *Activities:*

1. A **Desk-study**: identifying needs for climate information in existing standards
2. A **Workshop** – today and tomorrow!
3. An **outline for a Technical Report**, structured guidance on how to use climate information in Eurocodes and national annexes

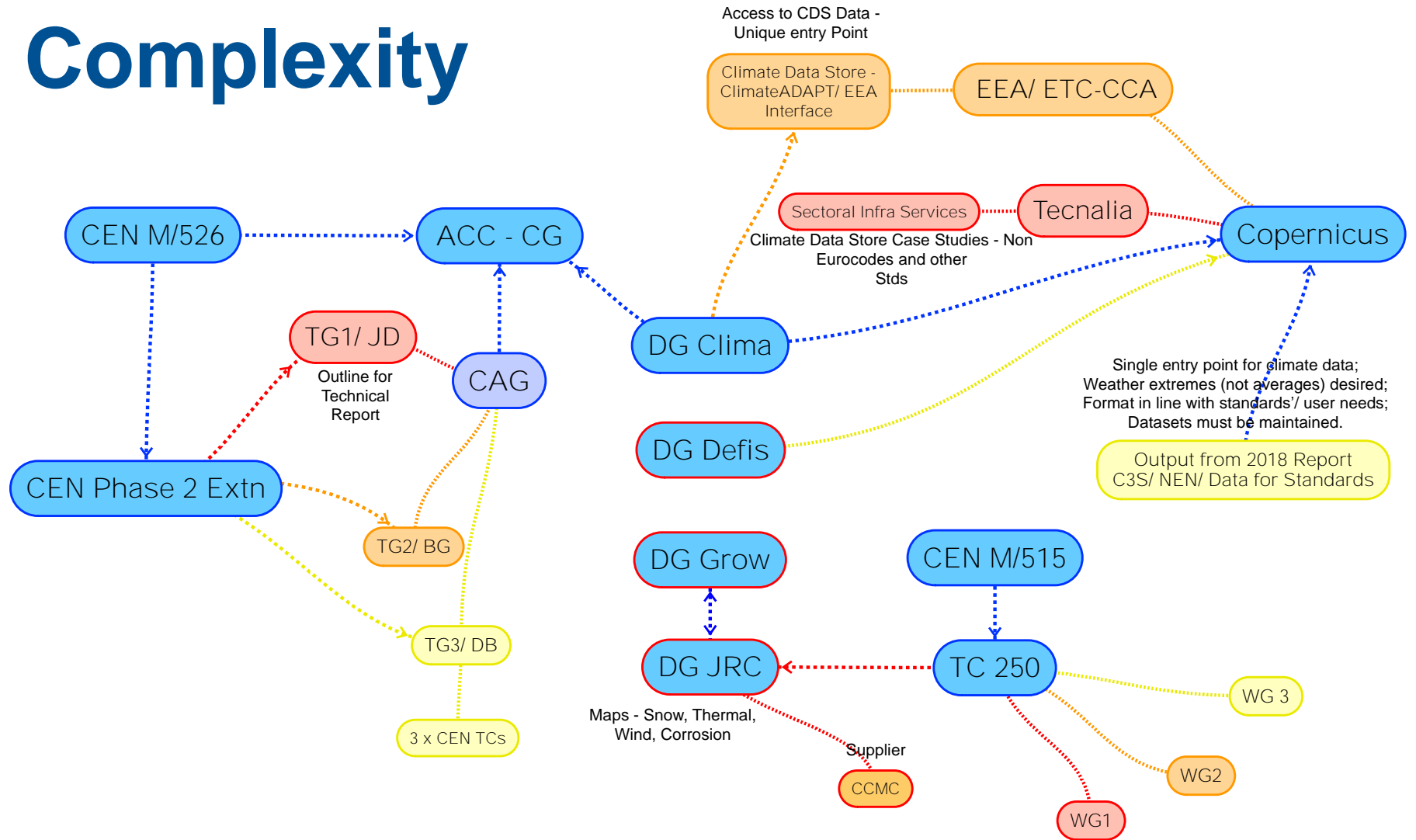
# Task 1. Desk study

- *Objective:* inventory of data needs for climate information at present in standards
- *Action:* Some 55 standards and the Structural Eurocodes have been reviewed as part of this exercise, for weather/ climate parameters
- *Content of report:*
  - Standards' 'landscape'
  - Identification of data needs in Eurocodes and other infrastructure standards
  - C3S Report: Climate data needed to address resilience to climate change in standards for infrastructures
  - Conclusions

# Desk study: Identification of dataneeds

- Structural Eurocodes
  - Concentrated upon Snow, Wind and Thermal loading
- Other infrastructure standards
  - Long list of prioritised standards
- Building, Transport, Energy, ICT sectors
- Listed in Desk Study
- Complementary to
  - EC Mandate 515
  - The framework of task SC1/T5
  - Copernicus Climate Change Services (C3S) SIS-Infra and
  - ClimateADAPT/ EEA
- Complex involvement

# Complexity



# Desk Study – Sample outputs – EN 752

Standard Designation	Title	Climate/ weather parameters/ units	Reference clause(s) and key text]	Usage
EN 752	Drain and sewer systems outside buildings - Sewer system management	Rainfall intensity - depth of rain falling in unit time, or volume of rain falling in unit time per unit area	5.2.3 Hydraulic performance requirements (abridged) [...] There are two commonly used methods of setting hydraulic performance requirements within the drain and sewer system: — The expected frequency of sewer flooding in any year, or the return period of sewer flooding. — The expected frequency of surcharge in drains or sewers can be specified depending on the type of property impacted and the expected frequency that surcharge would result in sewer flooding	This European Standard specifies the objectives for drain and sewer systems outside buildings. It specifies the functional requirements for achieving these objectives and the principles for strategic and policy activities relating to planning, design, installation, operation, maintenance and rehabilitation.



# Desk Study – Sample outputs – EN 1915

Standard Designation	Title	Climate/ weather parameters/ units	Reference clause(s) and key text]	Usage
EN 1915-1 and 1915-2	Aircraft ground support equipment - Part 1: General Safety Requirements - Part 2: Stability and strength requirements, calculations and test methods	Thresholds specified e.g. 40 knot wind gust		Design of airport ground-handling equipment.

(There are 40+ such entries)

# Desk Study – Sample outputs – EN 1991-1-3

EN 1991-1-3:2003	Eurocode 1: Actions on structures - Part 1-3:	Requires information on “snow load” on the ground.		EN 1991-1-3 gives principles and rules to determine the values of loads due to snow to be used for the	Sourced from draft prEN, 2020
	General actions - Snow loads.	1 in 50 year return period, $\text{kN/m}^2$			

# Desk study: Conclusions 1

- Some standards specify climate parameters using historical data
  - Generally 1961 – 1990 Climate – out of date!
  - Work for designers is reduced as local data is offered
  - Future – and current - climate markedly different
- Some standards require designers to source data
  - Then analyse averages/ extremes
  - Could mean near-current data sets are relevant
- Some standards specify climate thresholds
  - e.g. EN 1915 wind speed parameter as a design criterion for airport equipment
- Last two perhaps less 'future climate data' dependent
- But frequency might have a bearing on continual operability of equipment

# Desk study: Conclusions 2

- There are many initiatives
  - Complex web of players
  - Complementary work in progress
- Outline for a Technical Report (not the report!) aims to:
  - Structure guidance on what data is available for standards
  - Users and writers?
- Offer ways to access the data
  - Cover reliability and robustness of data
  - Explain technical matters e.g bias correction, climate / data terms
  - Align with next generation Eurocodes
  - All to permit flexibility and best use of climate data as the science improves

# Task 2. Workshop: today/tomorrow!

## Bridging standards to the new climate insights



### ▲ Technical standards

▲ What information about future climate should be included in order to increase resilience?

### ▲ Climate reference datasets

▲ Massive amounts of information/ data are available

▲ What should have priority?

▲ How and where to come accessible?

# Task 3. Outline for a Technical report

- Structure guidance on what data is available for standards.
- Ways to access the data
- Reliability and robustness?
- Alignment with next generation Eurocodes
- ....
- ....

# Thank you!

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Climate Sense

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"It's just not going to happen - we can't even adapt to turning down the central heating."



