

How Practice Theory and Complex Adaptive Systems Theory can inform future energy conservation policies

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**The added value of social practice theories in designing
and coalescing energy-saving policy instruments:
the example of energy retrofits in the residential sector**

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Outline

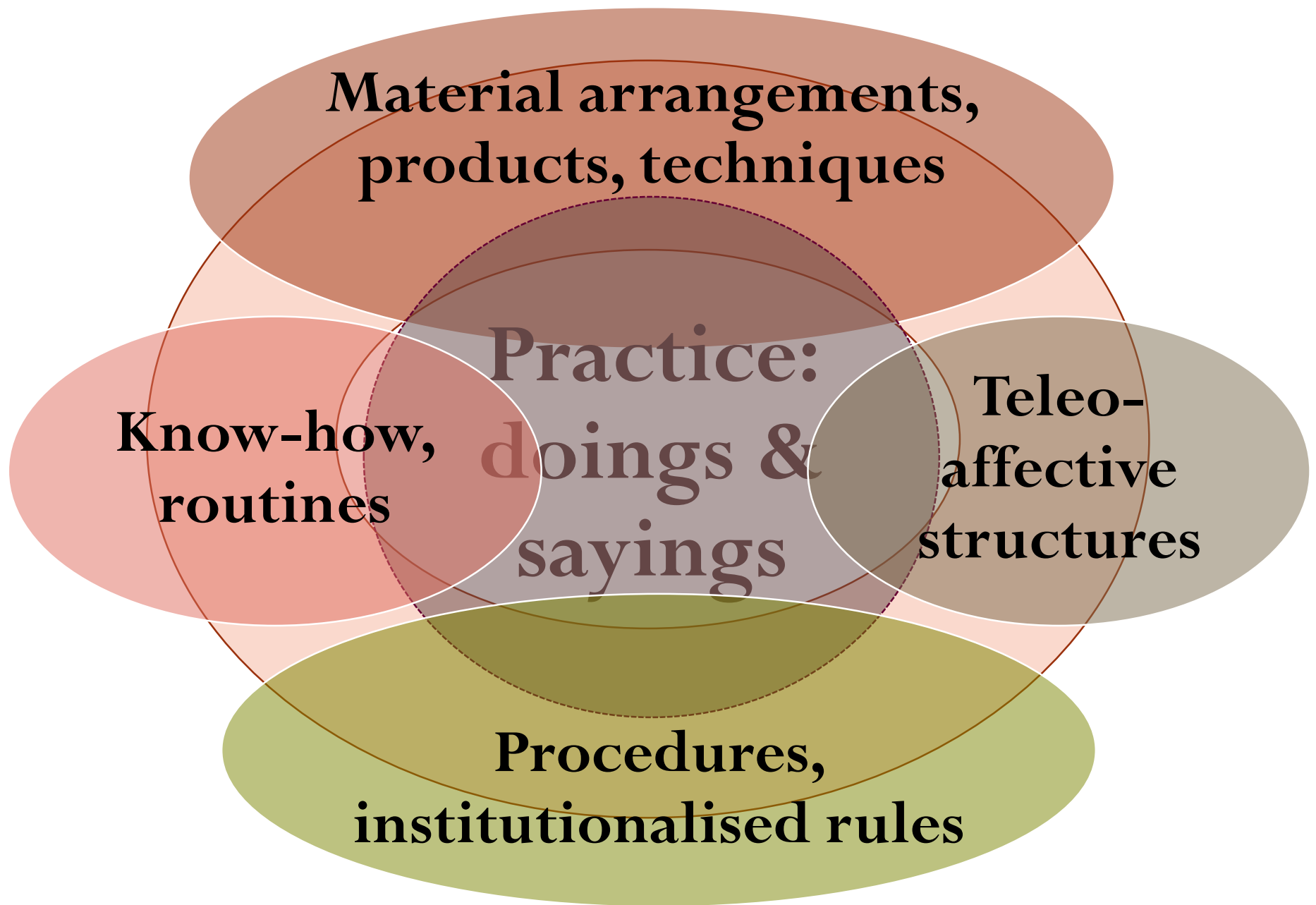
- **An overview of social-practices theories**
- **Defining the (disparate) practices of energy retrofit**
- **Practices' change: several ways**

An overview of social theories of practices

- **Origins:**
 - **Bourdieu**'s works on practices and habituses
 - **Giddens**' structuration theory(1984), namely the key role of routines in structuring societies
 - **Wittgenstein**
- → all departing from the usual dichotomies:
 - holism/individualism,
 - structure/agency,
 - macro/micro,
 - mind/action

An overview of social theories of practices

- Unit of analysis: **practice** (always collective)
- **Key concepts:**
 - Schatzki (1996): a practice is a **coordinated entity**, i.e. a “**temporally unfolding & spatially dispersed nexus of doings and sayings**”
 - **key components** of the nexus as **linking doings and sayings** in order to constitute a practice
 - Reckwitz (2002): “The single **individual** — as a bodily and mental agent — then acts as the ‘**carrier**’ of a practice



Defining energy-retrofit's practices

- **Several practices:**
 - Change of frames and windows
 - Roof insulation
 - External walls' insulation
 - Other insulation works
 - Change of boiler, stove, heating system:
possibly with renewable energy
 - (Heating-related practices)

Energy retrofitting = one practice?

- **Integrative / Bundle of practices**
 - **Integrative:** a set of doings and sayings linked by understandings, explicit rules, and teleoaffective structure (linked with the same components of practice organization, or via interrelations and cross-references among these components)
(Schatzki, 1996)
 - **Bundle:** ‘loose-knit patterns based on the co-location and co-existence of practice’ (Shove et al., 2012)
- **? An integrative practice or a bundle of practices?**

Energy retrofitting, 1 practice? No!

- **A bundle of practices:** co-location and sometimes, co-existence of practices:
 - Several disparate practices,
 - Different practitioners (contractors and/or DIY)
 - **Bundle:** ‘loose-knit patterns based on the co-location and co-existence of practice’ (Shove et al., 2012)

Practice change

- Integrating different disparate practices
- Changing one component
- (Re-)shaping synergies between components
- Coalescing several (integrative) practices

Integrating different disparate practices

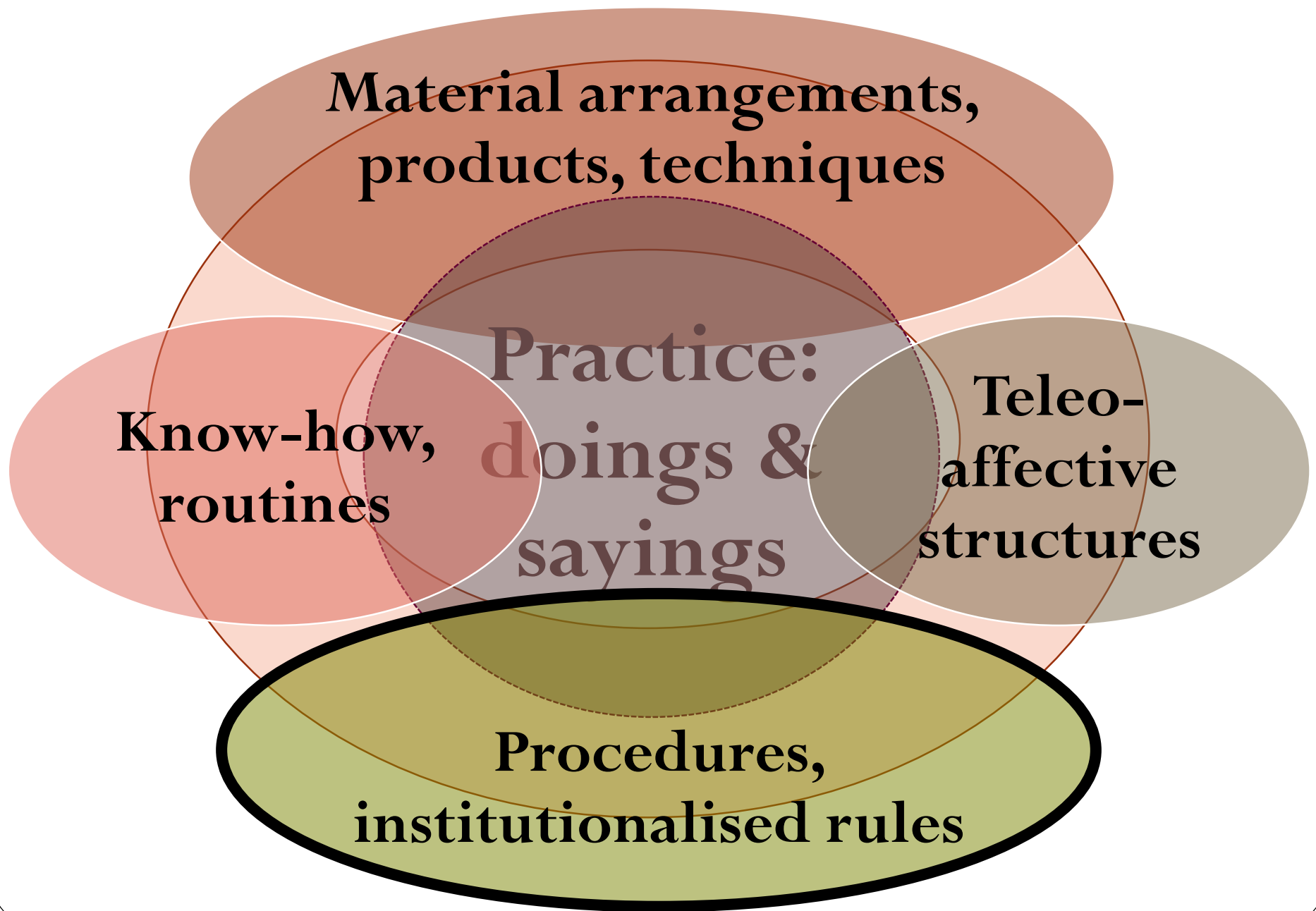
- “**Eco-pack**”: higher subsidies if 2+ energy-related renovations, possibly for DIY, also for renters (Wal.)
- Designing and using **the EPC as an epistemic object**
- Develop **integrated business** in insulation & energy savings, possibly supported by public authorities (ex: some municipalities in DK)

Integrating different disparate practices

- **Creation of educational programmes on energy retrofit**
 - Continuous training (ex: DK: Knowledge Centre for Energy renovation of Buildings since 2008)
 - New technical school programmes
 - Community learning programmes

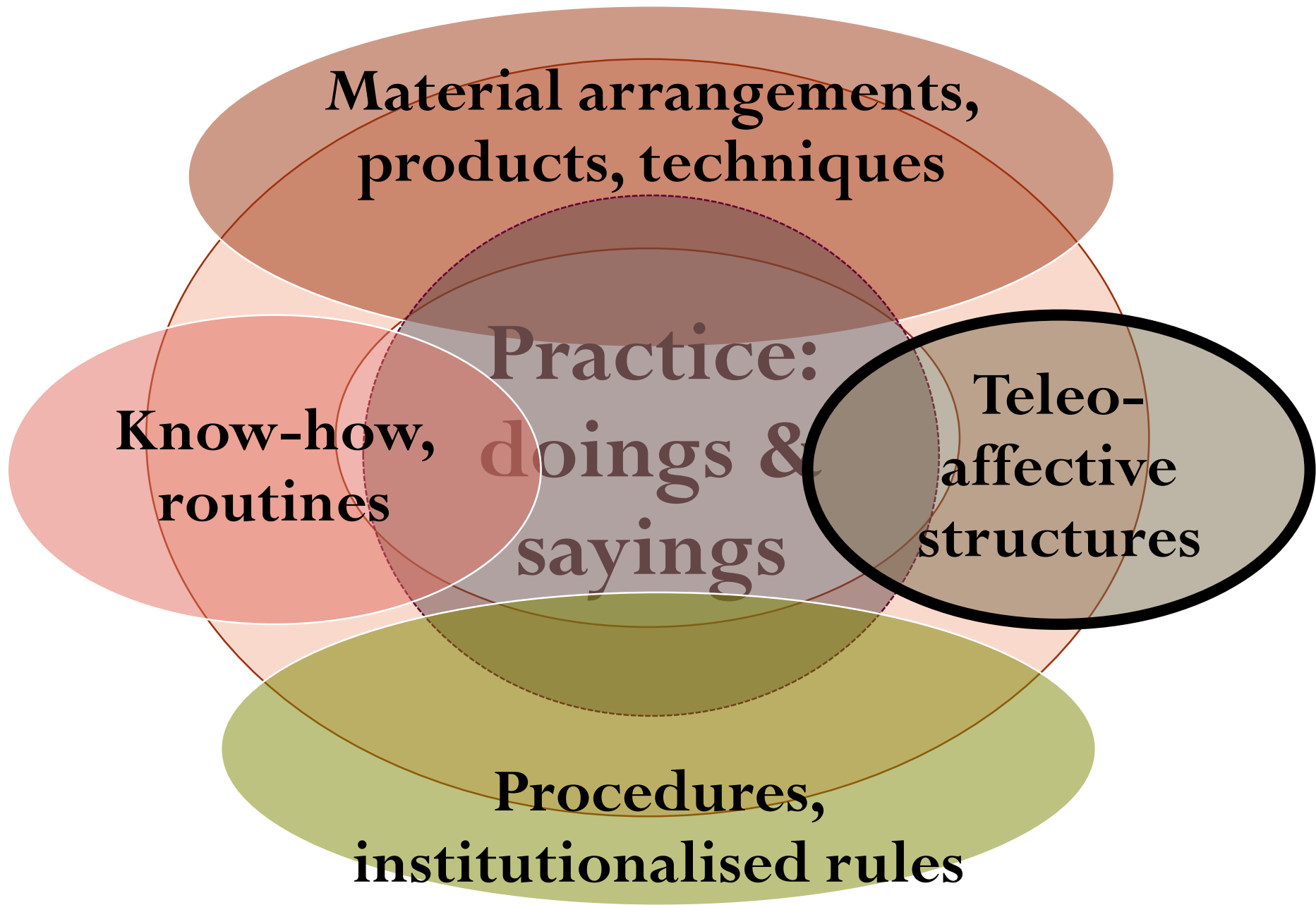
Practice change

- Integrating different practices
- **Changing one component**
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Reinforcing the procedures' component

- **Relate the EPC to other policy instruments:**
 - Condition for subsidies or low-rate loans for energy retrofit (Wal)
 - Free updated EPC after energy retrofit
 - Tax exemption for buildings with a good EPC (BG, PT)
 - Rent legally linked to the EPC



Reinforcing the teleo-affective structure's component

- **Make energy retrofit more mainstream and valorized:**
 - Associate energy retrofit with
 - Comfort, cosiness (! Rebound effect!)
 - Healthy lifestyle
 - Local employment
 - Individual autonomy (renewable energy)
 - Instead of
 - Saving money (>< distinction/inclusion)
 - Saving the planet! (>< liberalism, LV, BG)

Reinforcing the teleo-affective structure's component

- Reshaping experience from childhood
- Reconfiguring “domestic power”
(Bourdieu)
- Changing values associated with heat:
 - Healthy living
 - Right to consume → idea on the good life

L'indicateur électricité

Prévisions de la situation sur le réseau d'électricité belge à 7 jours.



Aujourd'hui 18/01
Situation normale

Il y a suffisamment d'électricité
disponible pour répondre à nos besoins
de consommation. Pas d'inquiétude !

PRÉPAREZ-VOUS DÉJÀ POUR LES AUTRES CAS DE FIGURE !

Dim.
18/01

Lun.
19/01

Mar.
20/01

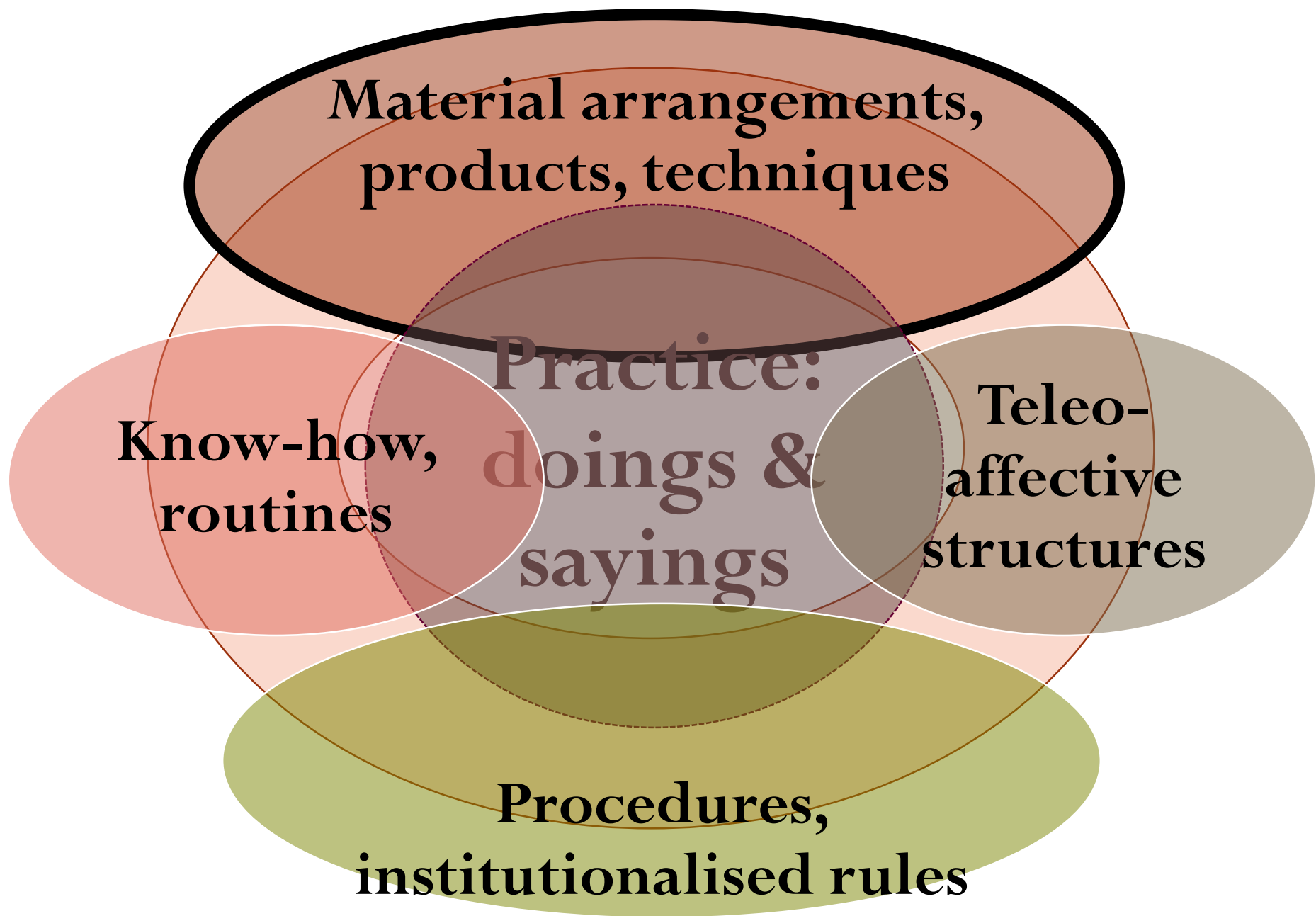
Mer.
21/01

Jeu.
22/01

Ven.
23/01

Sam.
24/01

'Needs' → 'rights'



Developing the products' component

- **Developing (research on) products**
 - Easy-to-use energy-saving and/or renewable-energy products and techniques for:
 - DIY
 - Neophytes
 - → ex: windmills in SW?
- **“Thermostat with a password”**
- **Smart meters? Apparently not a solution**
(Buchanan et al., 2015, JEPO)

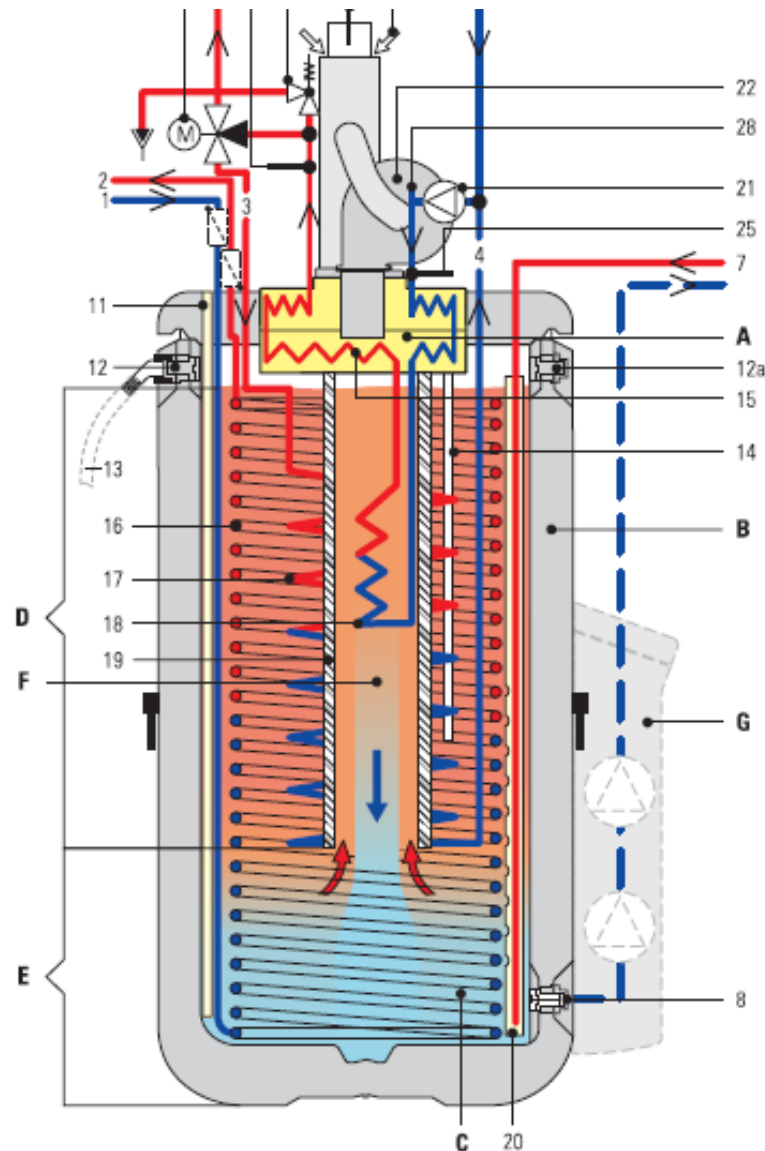
**Material arrangements,
products, techniques**

**Know-how,
routines**

**Practice:
doings &
sayings**

**Teleo-
affective
structures**

**Procedures,
institutionalised rules**

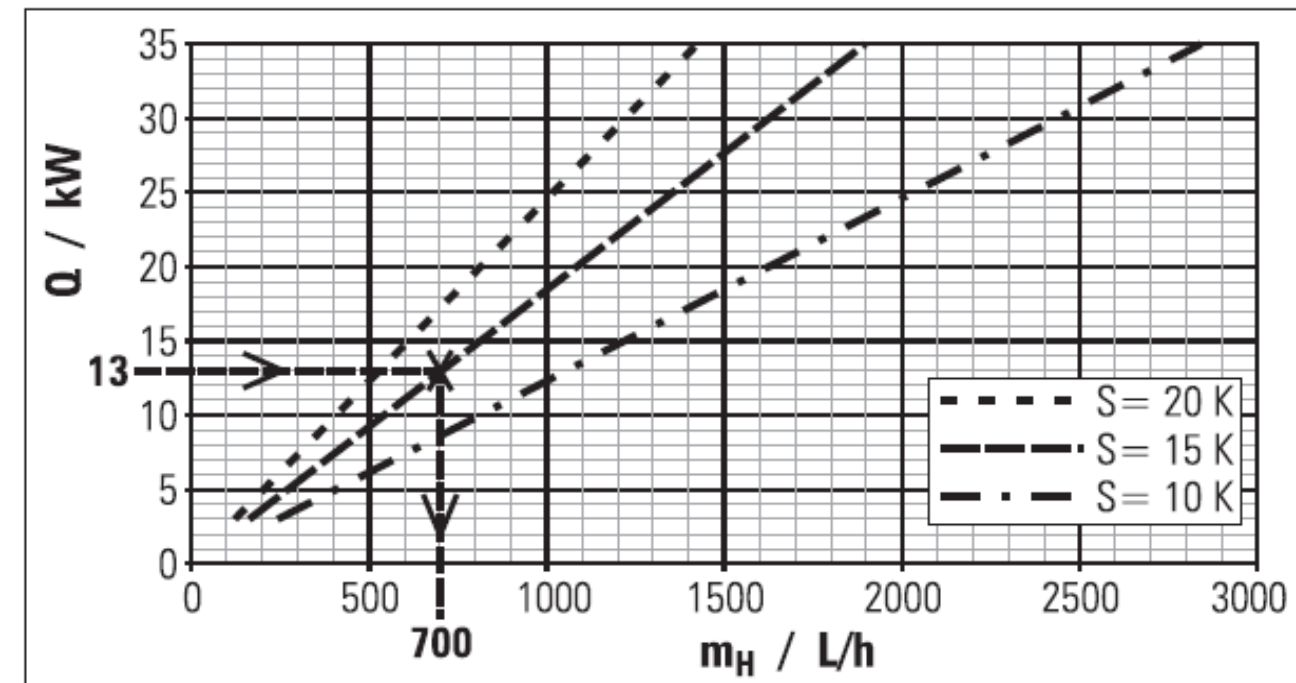


- D** Zone d'eau chaude
E Zone solaire
F Zone d'assistance de chauffage
G Unité de régulation et de pompe RPS (accessoires Solairs)
- 1** Eau froide⁹⁾
2 Eau chaude¹⁾
3 Aller d'échangeur de charge d'eau chaude
4 Retour d'échangeur de charge d'eau chaude
5 Aller du chauffage (chaud)
6 Retour du chauffage (froid)
7 Aller Solairs
8 Retour Solairs avec insert de vanne
9 Fumées
10 Air
11 Douille à immersion pour sonde de ballon et pour sonde de température de retour Solairs
12 Raccord de trop-plein de condensats
12a Raccord de remplissage supérieur (autre possibilité : Raccord de trop-plein de condensats vers l'avant)
13 Flexible d'écoulement de condensats (fourni par le client)
14 Tuyau de condensats
15 Echangeur de chaleur (corps de chaudière)
16 Echangeur de chaleur d'eau potable (TW-WT)
17 Echangeur de chaleur pour la charge du ballon (SL-WT)
18 Echangeur de chaleur pour l'assistance de chauffage solaire (HU-WT)
19 Protection thermique pour échangeur de chaleur pour l'assistance de chauffage solaire
20 Tube de stratification d'aller Solairs
21 Pompe de circulation de chauffage
22 Brûleur à soufflante à gaz
23 Vanne 3 voies
24 Sonde de température d'aller
25 Sonde de température de retour
26 Sonde de température des gaz de fumées (accessoires)
27 Soupape de sûreté
28 Raccord de vase d'expansion à membrane

▲ Dispositifs de sécurité

En fonction des besoins en chaleur et des températures de dimensionnement de l'installation de chauffage, il est également possible de faire fonctionner la pompe à un **régime réduit**, sans limitations de l'alimentation en chaleur. Ceci vous permet de faire des économies de courant pour la pompe. La pompe montée dans le ROTEX GSU consomme env. 75-80 W à l'étage de puissance 3, env. 55-60 W en étage de puissance 2, et seulement 40 W en étage de puissance 1.

Détermination de l'étage de pompe nécessaire



Q Puissance du chauffage

m_H Quantité de débit

Figure 4-5 Schéma de puissance de chauffage

- Déterminez dans le schéma de puissance de chauffage (Figure 4-5) la puissance de débit correspondant à une certaine puissance de chauffage en fonction de la plage de dimensionnement

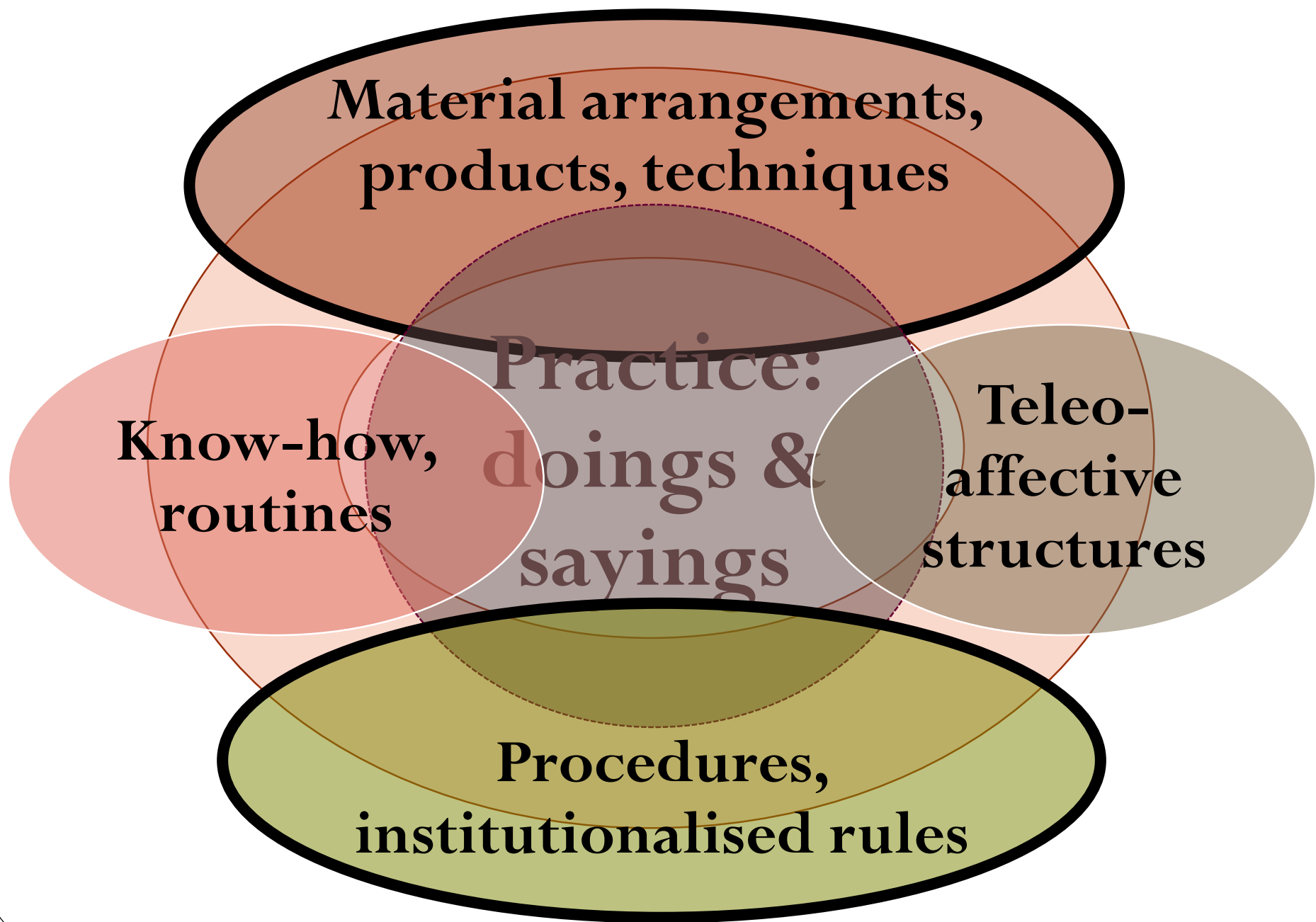
Who does understand?

Developing the know-how component

- **Easier manuals**
- **Increase the know-how of contractors**
- Include a **training session** for users on programming the boiler in the annual maintenance of the boiler (mandatory)
 - During absence
 - During the night

Practice change

- Integrating different practices
- Changing one component
- **(Re-)shaping synergies between components**
- Coalescing several (integrative) practices



(Re-)shaping synergies between

- Material and procedural components
- **Co-funding of renewable-energy projects for private house (ex: LV)**

**Material arrangements,
products, techniques**

**Know-how,
routines**

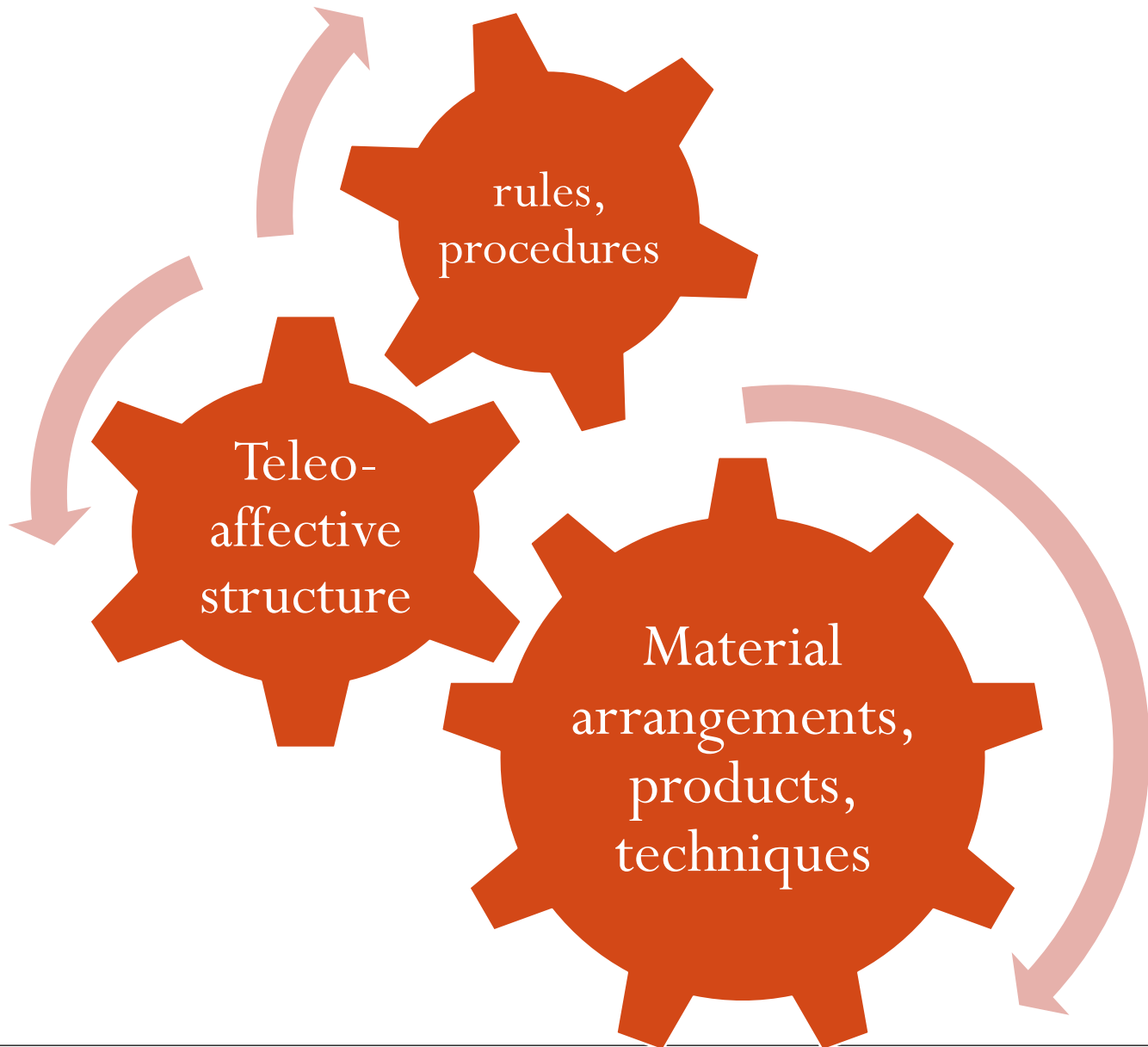
**Practice:
doings &
sayings**

**Teleo-
affective
structures**

**Procedures,
institutionalised rules**

(Re-)shaping synergies between

- Material, procedural and teleo-affective components
 - Higher subsidy for natural and locally-produced insulation material (hemp)



Practice change

- Integrating different practices
- Changing one component
- (Re-)shaping synergies between components
- **Coalescing several (integrative) practices**

Coalescing several (integrative) practices

- Energy retrofit + heating practices
 - Customising the energy bill with the EPC
 - Progressive tariffs for gas and electricity
- Energy retrofit + heating practices + dressing practices
 - Bad examples...

Météo 20h00



Samedi 17 janvier 2015



2min 51s



Clothes > < weather



A counter-example of reconfiguring material arrangements and dressing routines

**Thank you very much
for your attention!**

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