



Dependent on your neighbours.

And other challenges for engaging homeowners in heat transition plans.

Eline van den Ende
26 juni 2019

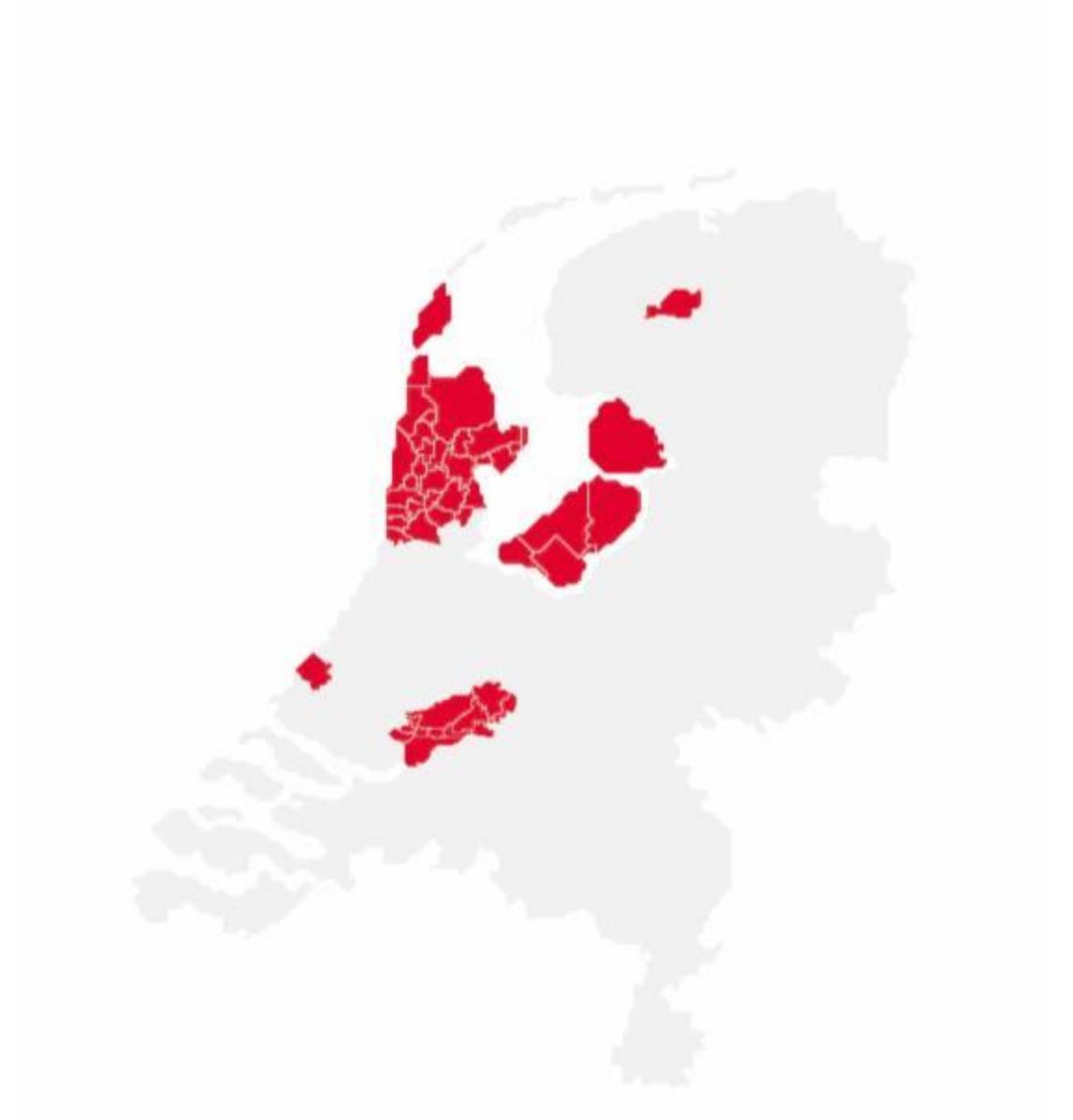
heat transition.

- The phase-out of natural gas in the built environment, to contribute to the CO₂ emission reduction goals.
- 95% of the households has a natural gas connection.
 - *1000 houses per workday for the next 30 years.*
- Municipality as the “director” of the transition.
- Neighborhood approaches to select alternatives.

How can municipalities realise a publicly accepted heat transition?

HVC.

- sustainable energy- and waste company
- public heat company



intro.

Eline van den Ende

- Complex Systems Engineering and Management, TU Delft
- Science Communication, TU Delft
- Energy Club boardmember

HVC

- Municipal advisor `social processes heat transition`
- Supporting role in complex stakeholder processes
- Content controll of communication means

overview.

- transition process
- design of a neighborhood approach
- pilots in Heerhugowaard and Sliedrecht
- current challenges
- future challenges



transition process.

heat transition.

Objective:

To contribute to the CO₂ emission reduction goals via the phase-out of natural gas in the built environment.

Consequence for DH industry:

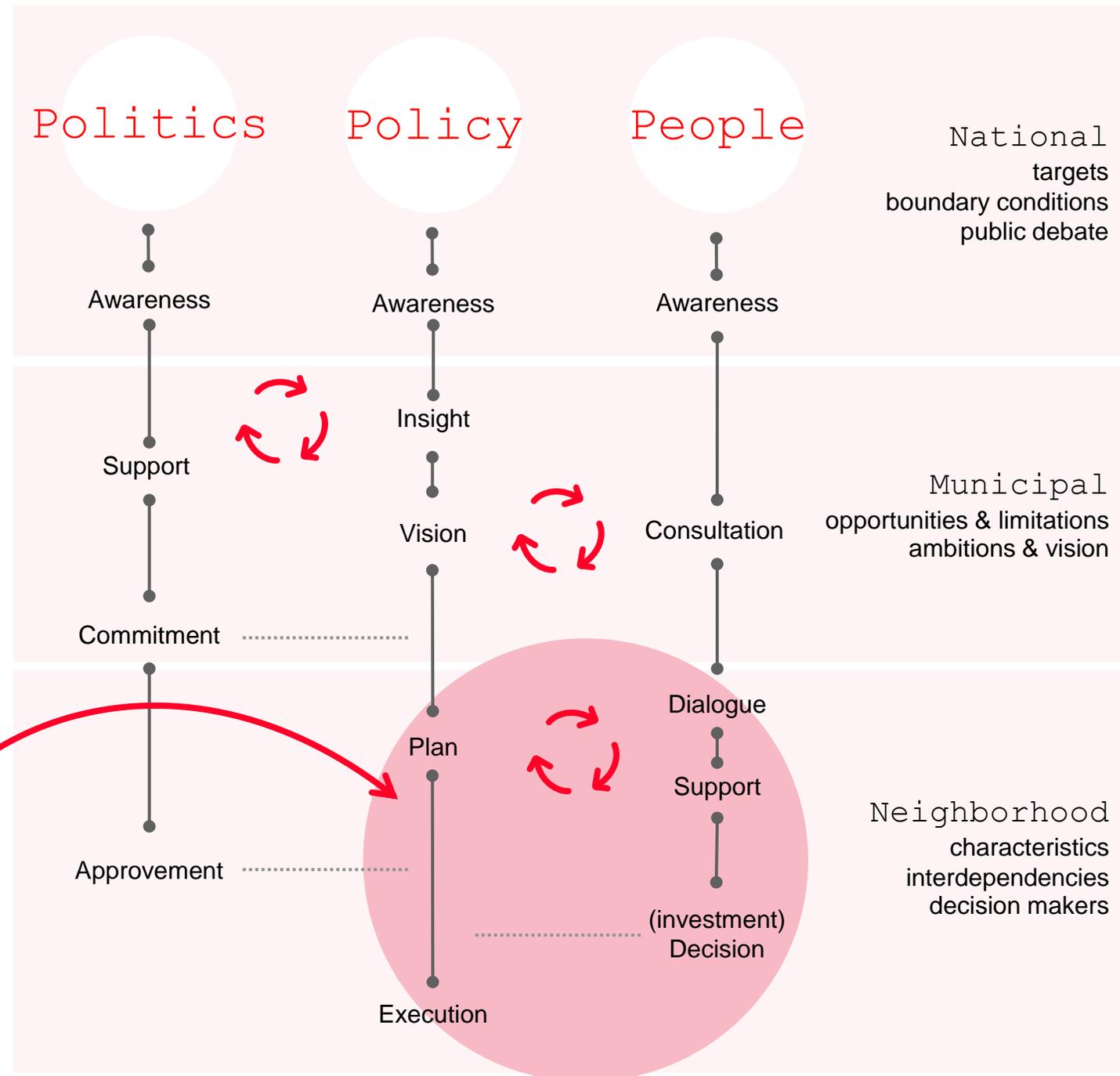
From: business-to-business and demand driven

To: business-to-consumer and policy driven

heat transition. policy process.

Formal and informal interactions.

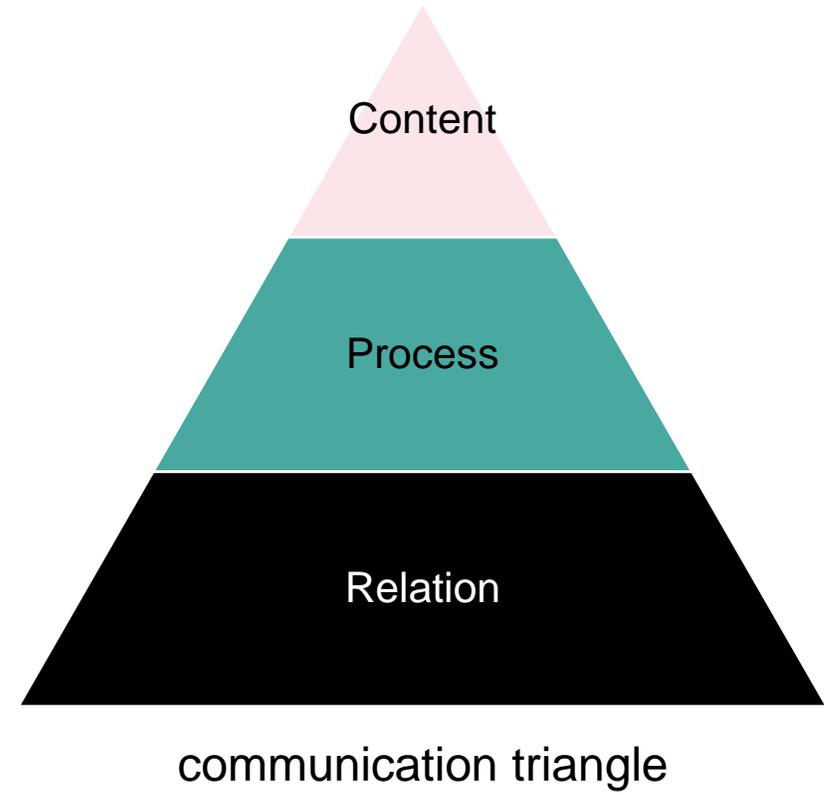
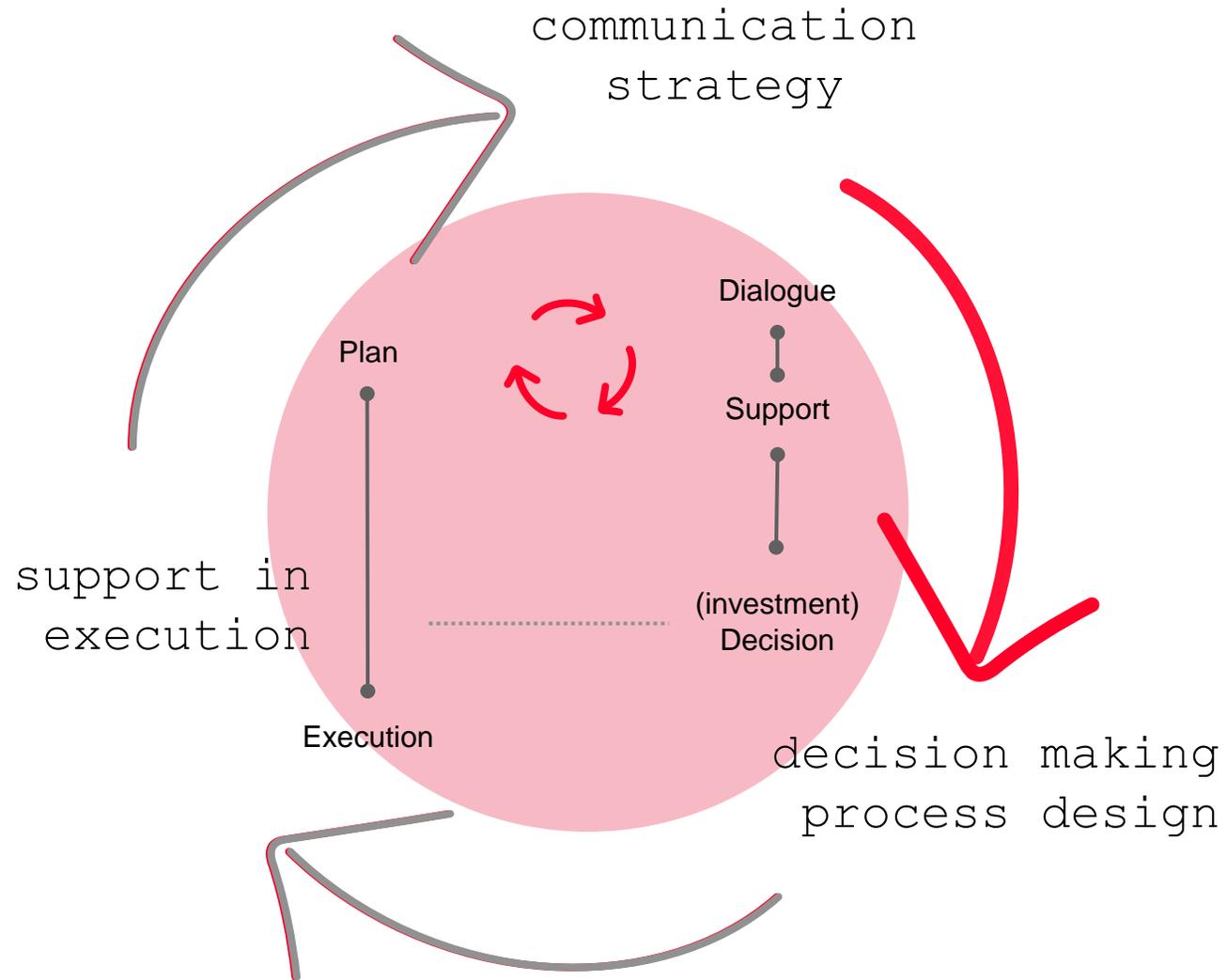
Focus
of today





neighborhood approach

neighborhood approach.



neighborhood approach.

communication strategy

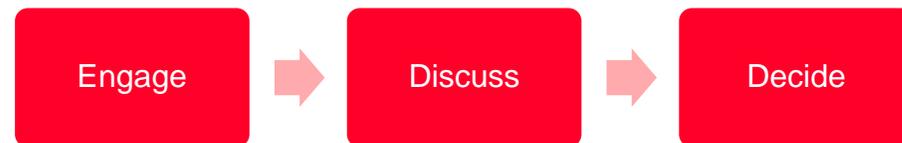
Building dikes (buffering)

- Non-controversial topics
- Predictable environment
- Solutions are clear
- Solutions can be compared objectively
- Decision has a low impact



Building bridges (bridging)

- Conflicting interests
- Unpredictable (change) environment
- Solutions are unclear
- Solutions cannot be compared objectively
- Decision has a high impact

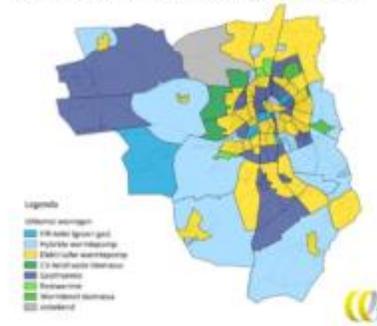


neighborhood approach.

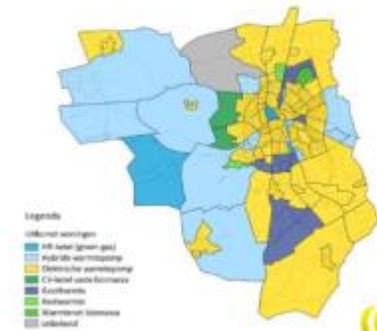
problem characteristics

- unclear (changing) political environment
- threatening public debate
- high impact on living environment (at least on the short-term)
- behaviour change (long-term)
- (In)-finite and (partly) unknown solution space
- no carrot, no stick
- start of the s-curve
- interdependency between residents
- (potentially) heterogeneous and asymmetrical power relations

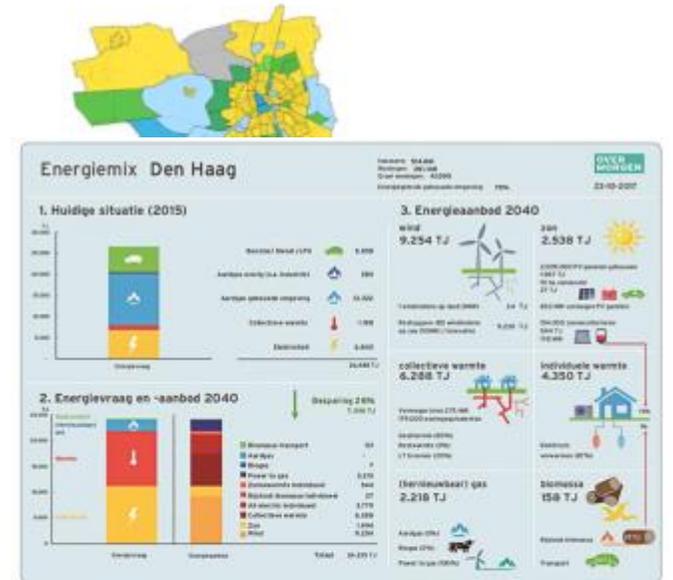
Figuur 1 - Uitkomsten technieken in het basisscenario



Figuur 3 - Uitkomst bij Variant 2 extra isolatie-eis



Figuur 2 - Uitkomst bij Variant 1 zonder geothermie



Figuur 2: Alternatieven voor aardgas voor verwarming per buurt



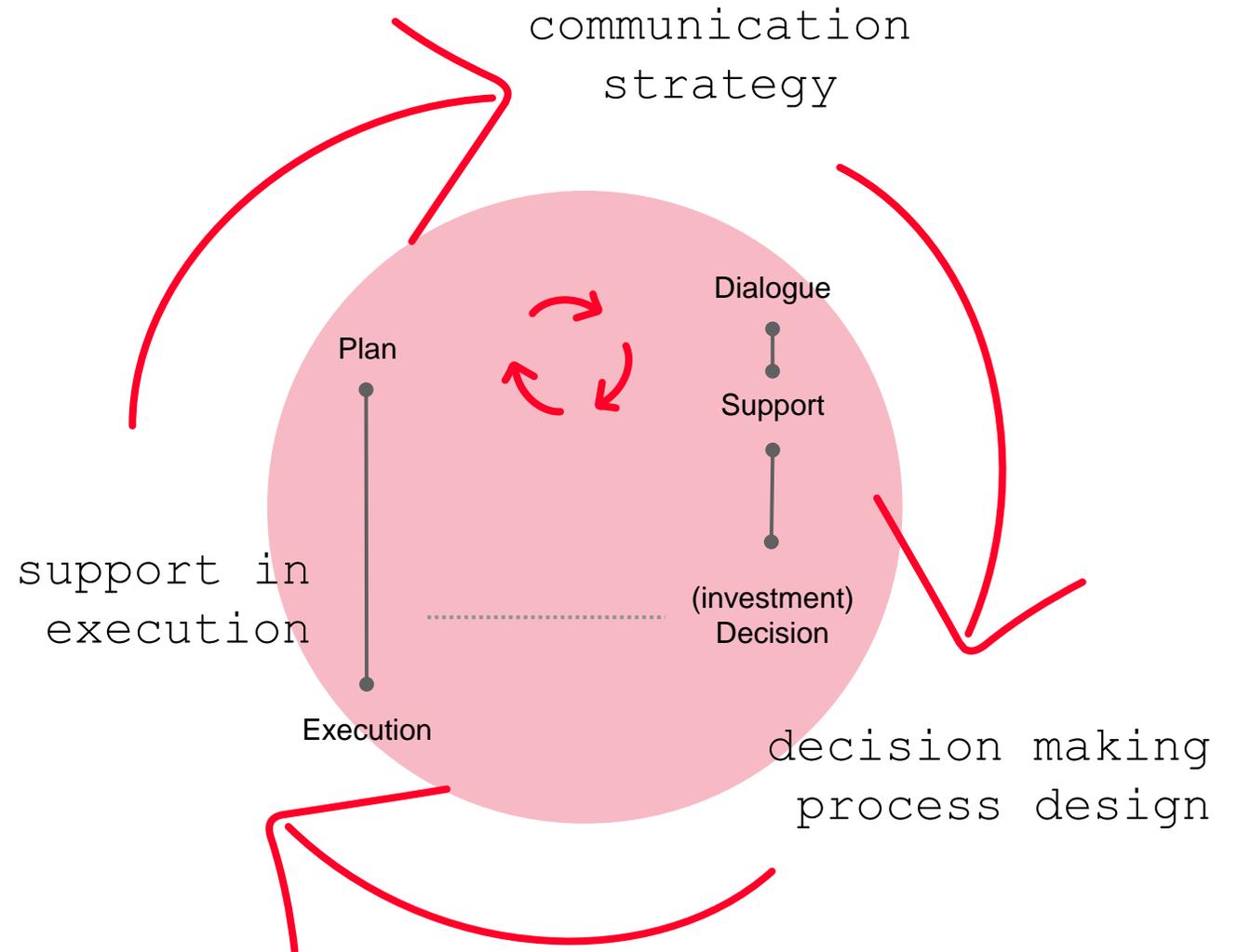
Figuur 3: Kansrijke locaties om aan de slag te gaan



neighborhood approach.

bridging

- two-way communications
- empathy
- transparency
- open to dissenting opinions
- **willingness to change**



neighborhood approach.

assumptions

- A. Based on **local and personal conditions**:
 - A. knowledge, experience
 - B. values and normative beliefs
 - C. personal characteristics
 - D. personal needs

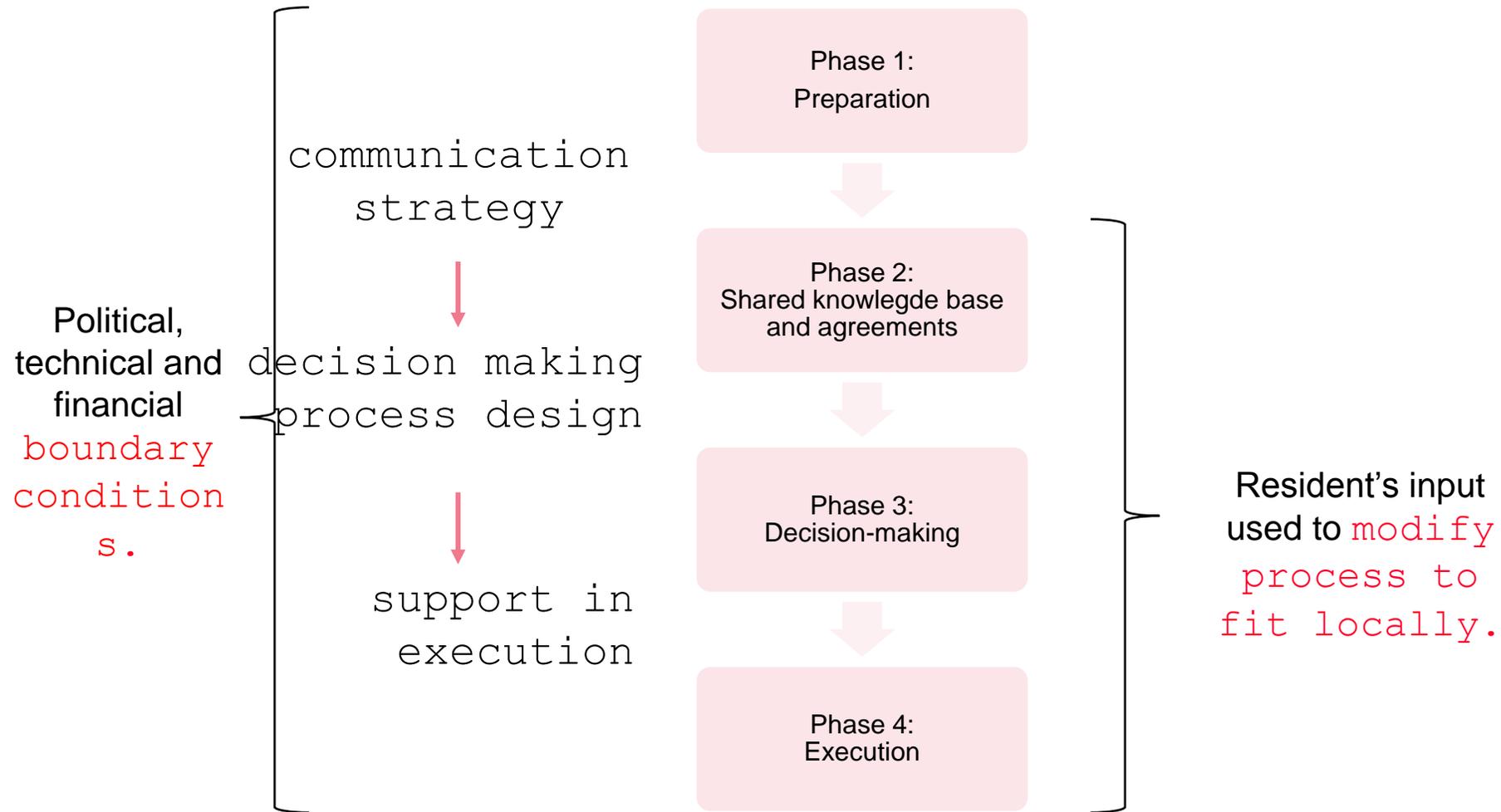
- B. Sufficient **time to get accustomed to change** (estimated time min. 2-years).

- C. Connected to a process to **unburden residents to adopt** change.

- D. Aimed at a **shared desired result**.

- E. **Continuous sensitivity to changes** in attitudes, norms etc. to quickly adapt or respond.

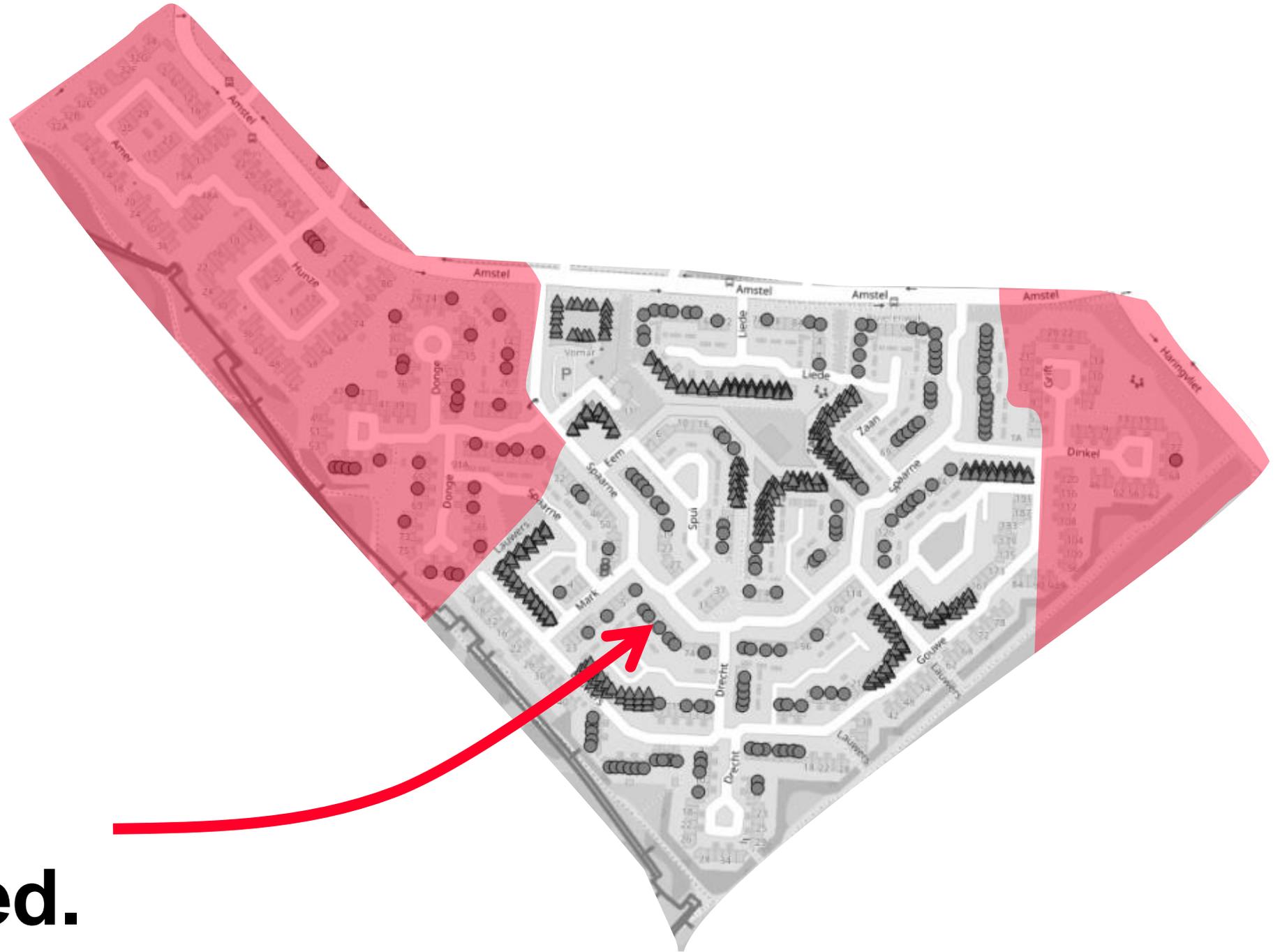
4 phases.





Example 1: Heerhugowaard

District heating contracted.



preparation.

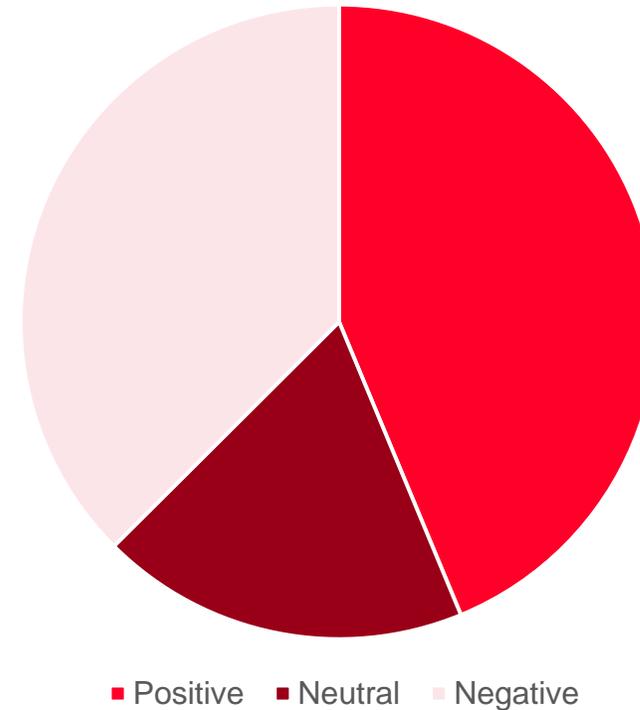
boundary conditions

- Expansion of existing DH network (BIO-based).
- Signed contract for housing agency houses in 50% of the district.
- Time pressure as a result of delayed district-improvement project.

preparation. survey

- Response: 67/ ~150
- 80% is aware of transition
- general attitude is slightly positive
- Negative reactions: high (expected) costs,
- 20 people want to participate: “meedenken”
- 39 want to be informed
- 3 have no interest

Attitude towards transition



knowlegde base and agreements.

2 evenings for homeowners

- 1 for households in “heart”
- 1 for households in “wings”

Topics:

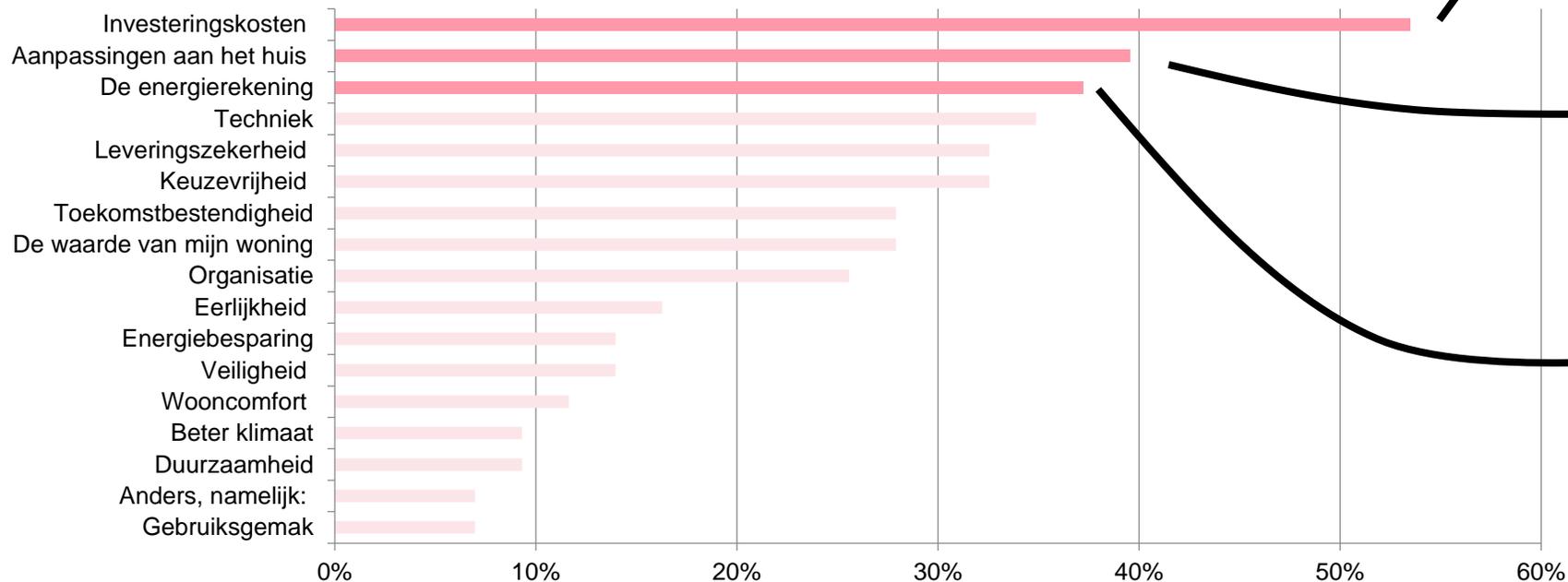
1. Heat transition
2. Project introduction
3. Decision space homeowners
4. Next steps



knowlegde base and agreements.

content – cards

Waar wilt u het de volgende keer over hebben?



House-scans to identify modifications & corresponding costs.
Easy access to a local model home.

Development of online tool to calculate personal financial consequences.

knowledge base and agreements.

Content:

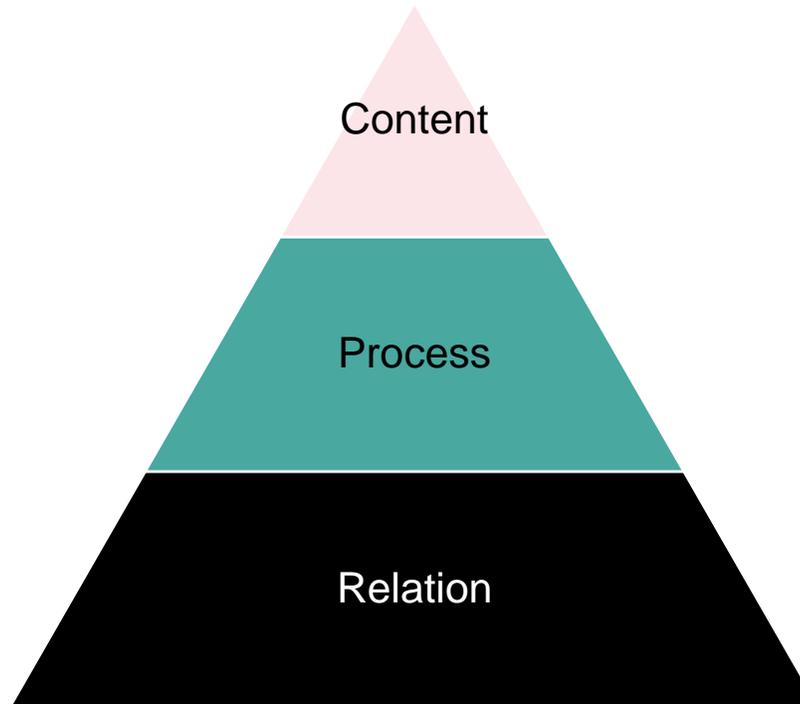
1. Investment costs
2. Home alterations
3. Energy bill

Process:

1. Municipality is in charge
2. Residents have freedom of choice
3. All alternatives will be researched

Relation:

1. Informal
2. Reliable
3. Supportive



communication triangle

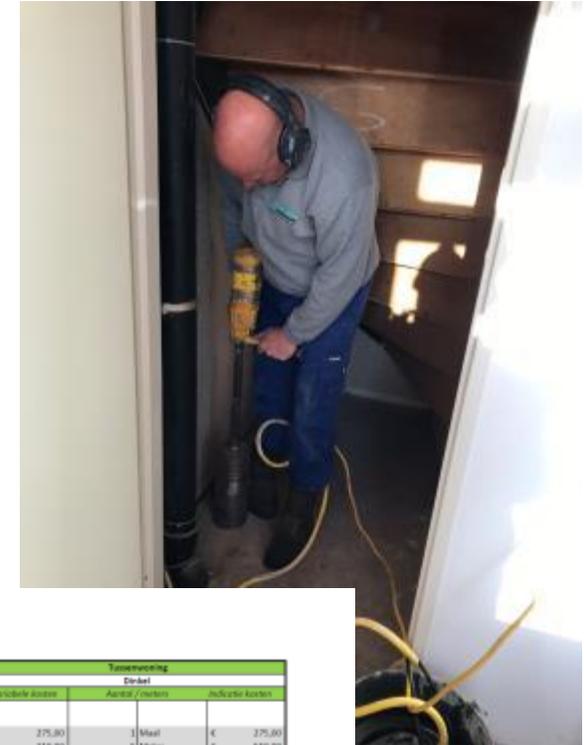
knowlegde base and agreements.



Er is een direct gestookt Brink hoteluchtverwarmingstoestel aanwezig in de woning. Deze staat op zolder en is aanwezig vanaf de bouw. De unit verbrand gas om direct de lucht te verwarmen die door kanalen in de woning en diverse luchtroosters wordt verspreid.



De woning wordt geventileerd d.m.v. het luchtverwarmingssysteem dat zowel lucht toevoert als afvoert. In de luchtverwarmingseenheid is een warmteterugwin unit aanwezig waar de buitenlucht wordt voorverwarmd alvorens het de hoteluchtverwarming in gaat. In de badkamer is een bediening van dit ventilatiesysteem aanwezig (met luchtvochtigheid meting).



Kooktoestel op gas aanwezig.



In de slaapkamer aanwezig van een e...

Kostenberekening-Stadswaarte

Project : **Buizenwiel Werkgroepwaart**
Alle kosten zijn Excl. BTW

Type woning	Tussentijdse		
	Verbouwde kosten	Aankoop / Materialen	Individuele kosten
Lidwoning			
Verwarming & koeling			
Bouwkundige aanpassingen - Leidingwerk		1 Maat	€ 275,00
Aanpassingen meterkast - Incompleet/vervangt bestaande leidingwerk	€ 275,00	5 Maat	€ 550,00
Afsluiten werk leiding na aanleg CV leiding 80, 1e verdieping, onder	€ 27,50	2 Maat	€ 55,00
Spuitingen maken en afsluiten CV (max 1x)	€ 82,50	0 Maat	€ -
Spuitingen maken en afsluiten (betrok)			
Installaties - Centrale verwarming			
Aanpassen aanvoer + retour CV leidingen van meterkast tot 22mm leiding (incl. 4 koppelingen)	€ 46,75	17 Maat	€ 794,75
Aanpassen aanvoer + retour CV leidingen op warmteaflosser in meterkast (incl. 2 koppelingen)	€ 55,00	1 Maat	€ 55,00
CV klep en trimmateriaal voor terugslagklep	€ 275,00	1 Maat	€ 275,00
Aanleg thermostaatbediening	€ 82,50	1 Maat	€ 82,50
Stellen, afstellen, controleren (Demppen CV)	€ 77,00	1 Maat	€ 77,00
Totaal warmtevoorziening		1 Maat	€ 2.109,25
Drinkschotel			
Spuitingen maken / afsluiten voorleidingen (betrok)	€ 82,50	2 Maat	€ 165,00
Spuitingen maken / afsluiten (betrok)	€ 27,50	Maat	€ -
Aankruisen koudwater 15mm naar meterkast + inductiecombinatie	€ 154,00	1 Maat	€ 154,00
Aankruisen warm tapwater 15mm naar badkamer	€ 62,24	Maat	€ -
Aankruisen warm tapwater 15mm naar keuken via kraanarm	€ 26,95	5 Maat	€ 134,75
Totaal tapwatervoorziening			€ 453,75
Sloopwerk			
Verwijderen CV best., overboort CV leidingen	€ 128,50	1 Maat	€ 128,50
Afsluiten CV leidingen	€ 55,00	0 Maat	€ -
Afsluiten en materialiseren en doorlaten	€ 110,00	1 Maat	€ 110,00
Verwijderen rookgasafvoer + dakpan plaatsen	€ 394,50	1 Maat	€ 394,50
Verwijderen gableiding binnen	€ 77,00	1 Maat	€ 77,00
Verwijderen vloerwaaier	€ 16,50	1 Maat	€ 16,50
Roeding			
Aankruisen inductiecombinatie warmte aflosser op vloer (incl. sloop)	€ 181,50	1 Maat	€ 181,50
Verwijderen best. meterkast	0,00		€ -
Totaal overige			€ 918,00

Home > Vergelijk de kosten van warmte en gas

Vergelijk de kosten van warmte en gas



decision-support.

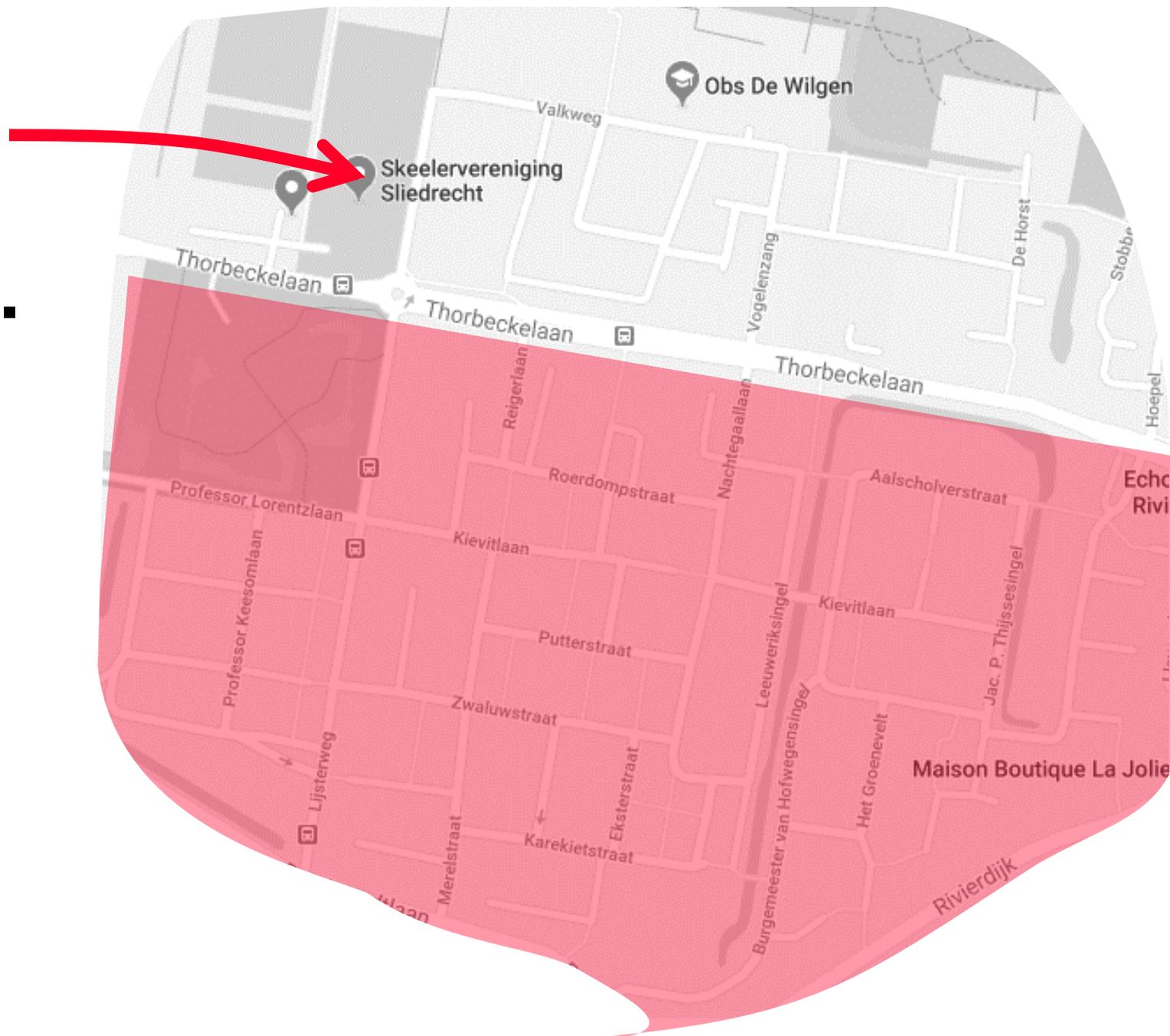
next step

- “kitchen table talks” per street
- walk-in hours
- letters of intent



Example 2: Sliedrecht

District heating contracted.



preparation.

boundary conditions

- Municipal DH network on GEO as main solution,
- Min. 2500 houses in Sliedrecht (same in Papendrecht)

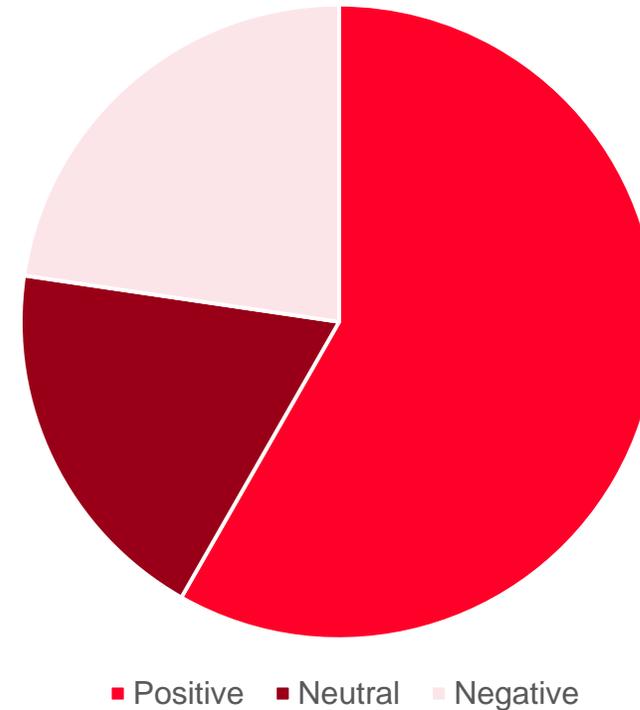
- €3,8 mln. subsidy for development of DH in district Oost
- ~ €400.000 process budget
- ~ 2 years from kick-off to decision

- Combined with re-design of public area.
- ~ 2000 households, 50% privately owned, 50% social housing agency

preparation. survey

- Response: 496/2000
- 90% is aware of transition
- general attitude is slightly positive
- Negative reactions: unnecessary (high) costs, age resident, nonsense
- 121 residents signed-up for participation
- 65+ group is underrepresented
- higher response amongst homeowners than tennants
- little-to-no neighborhood initiatives

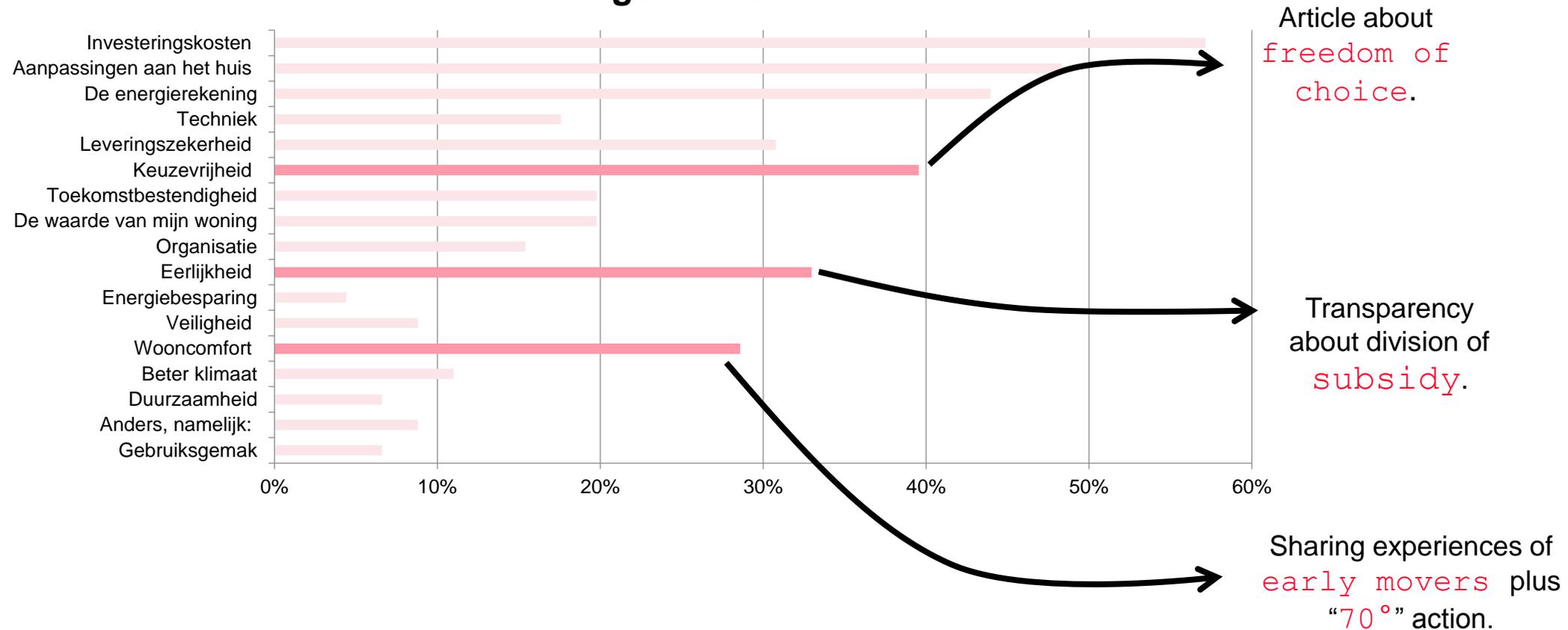
Attitude towards transition



knowlegde base and agreements.

content - cards

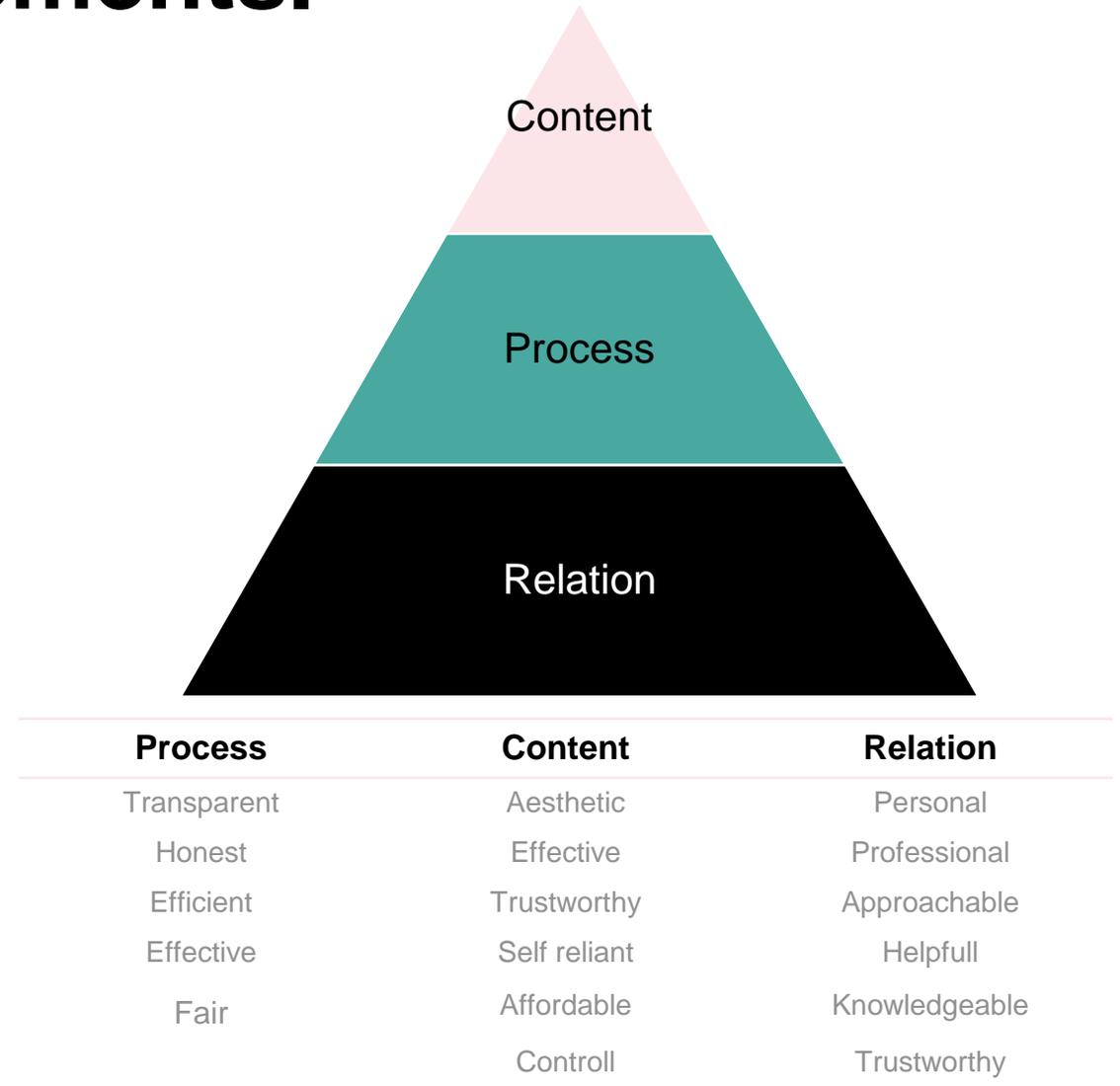
Waar wilt u het de volgende keer over hebben?

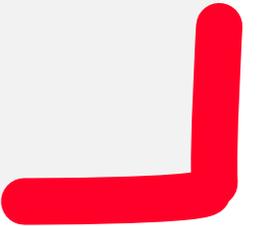
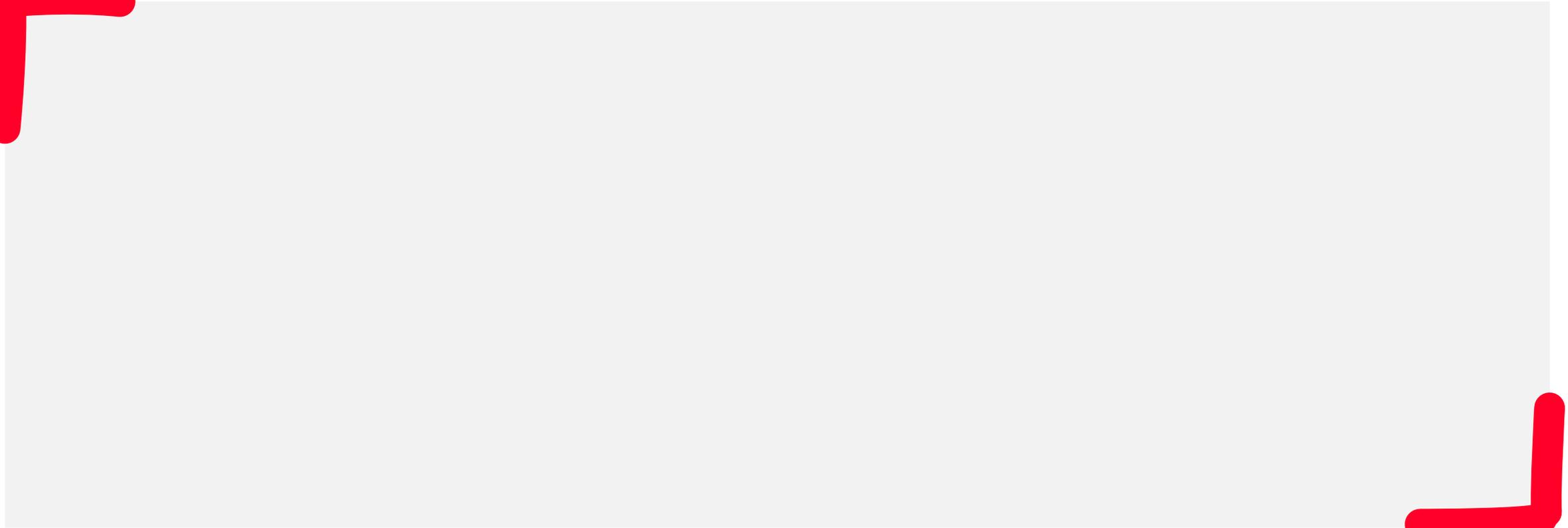


knowledge base and agreements.

Next step

- Process design meeting with residents:
(*Objective & boundaries municipality*)
 - What do you find important?
 - What is necessary to achieve this?
 - What do you want contribute personally?
 - What do you expect from the project group?
- Process **agreements** based on values:
process, content and relation. Plus controll
mechanism.
- Organisation of executive organisation.





challenges

challenges.

relation - Heerhugowaard

Heerhugowaard

- no desire to participate.
- trust
- suspicion

Sliedrecht:

- different perspectives on ambition.

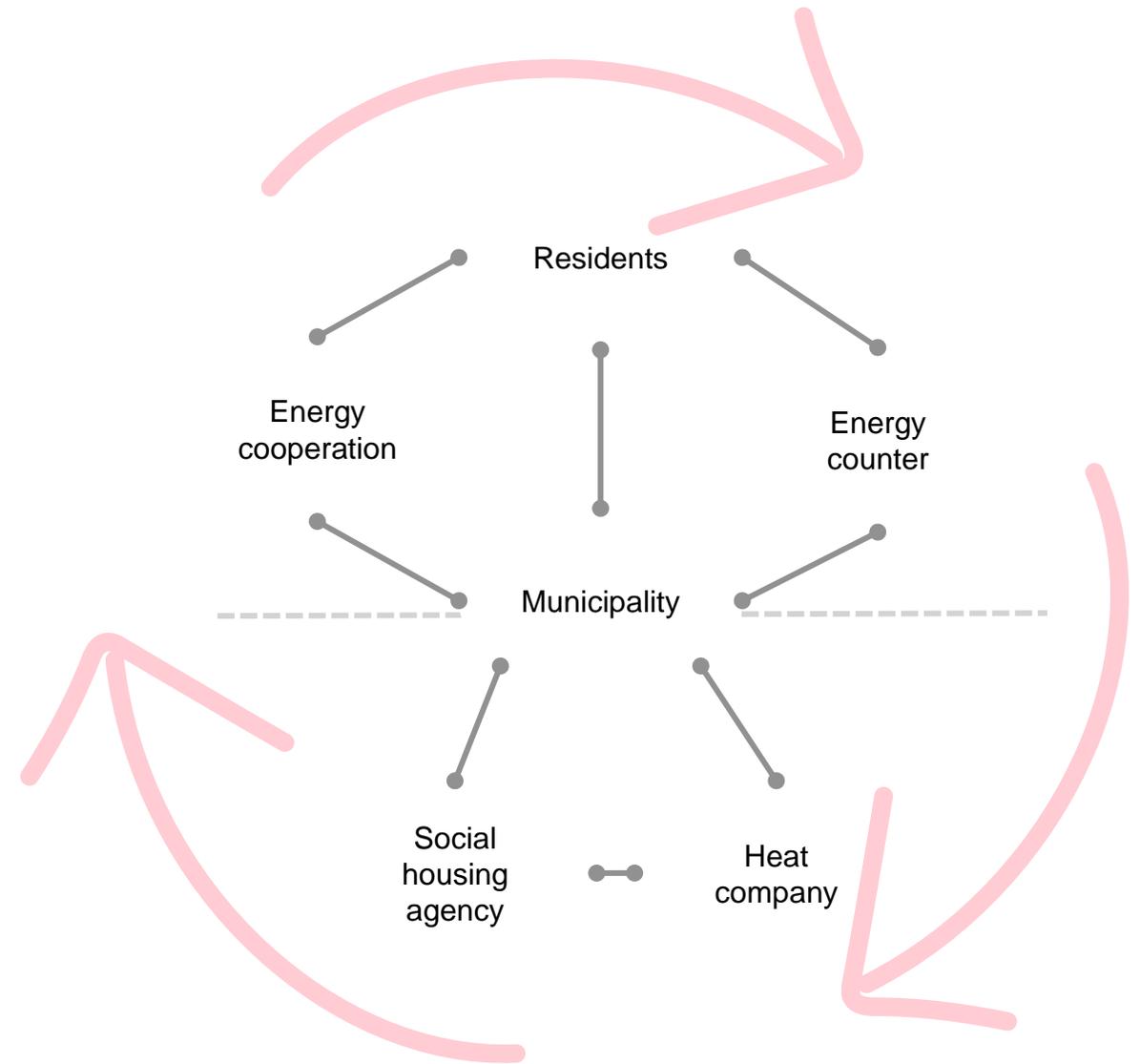
General:

- “answers” versus “early engagement”.
- “knowlegable” or “vulnerable”

challenges.

process

- New roles for professionally engaged stakeholders.
 - *New collaborations*
 - *New audience*
 - *Changing surroundings*
- Representation issues residents.
- Slow process: new challenges & desire to tailor to needs.



challenges.

process

Existing processes are:

- business-to-business oriented
- consumer oriented: collective purchase of a single sustainability measure, instead of a “full package deal”

Future processes require:

- Policy driven, business-to-consumer oriented
 - Majority decisions?
 - Both interdependent decisions and individual decisions.
- Interdependent decision making in a social/neighborhood setting.

challenges.

content

Existing communication means are targeted at:

- ***“early movers”***
 - complex technical information
 - focussed on “sustainability”
- **tennants and new home owners**
 - “buffering”
 - explaining changes

Future communication means should support:

- ***“early and late majority”***
 - relatable and concise
 - “normalizing change”

hvc.

energie en hergebruik

